

# JOURNAL

OF THE

## AMERICAN VETERINARY MEDICAL ASSOCIATION

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Volume CXIX NOVEMBER 1951 Number 896

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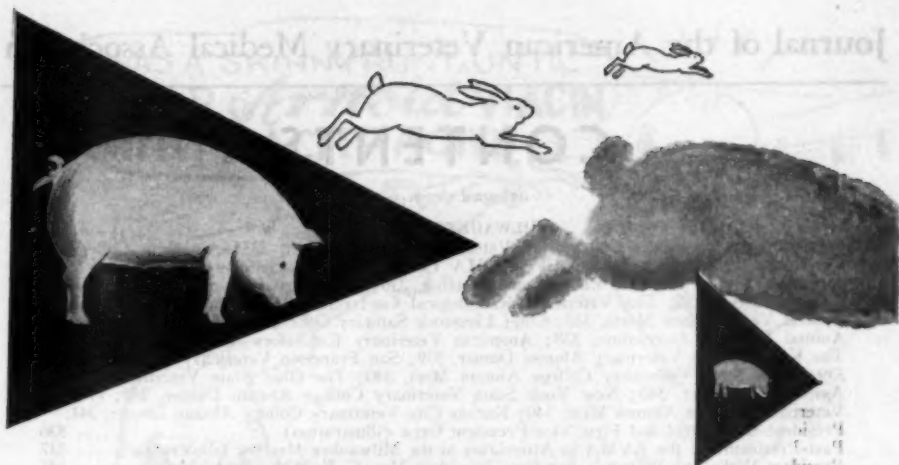
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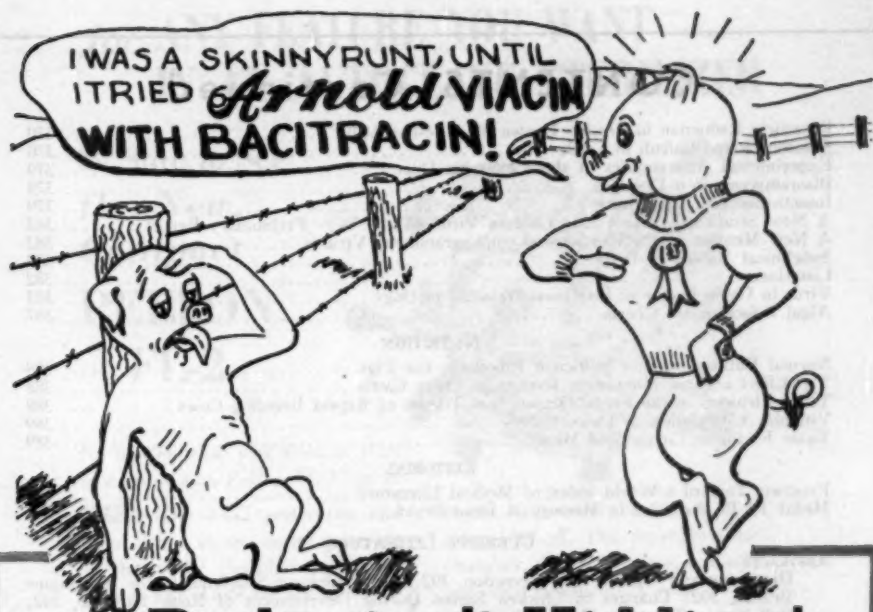
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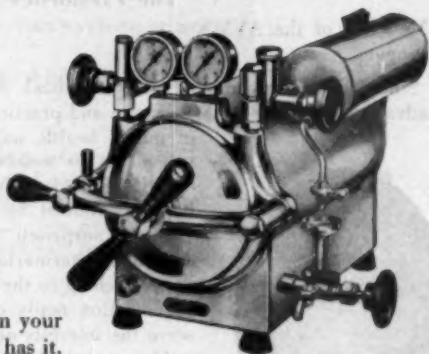
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# AVMA ☆ Report

## Veterinary Medical Activities

### The President's Letter

To Members of the AVMA

Greetings:

Since the American Veterinary Medical Association is designed to promote the advancement of veterinary science and practice in all its branches—in agriculture, in public health, and in government services—it seems reasonable to assume that its maximum efficiency and contribution to professional welfare and the public can best be attained by maximum membership.



I was surprised to learn that of the 16,000 active American veterinarians, about 5,000, or nearly one-third, do not belong to the Association although this is the one organization really qualified and actively functioning to serve the interests of the entire profession.

My special objective for the year, therefore, will be to correct this situation. If every nonmember veterinarian is personally approached by a member—a friend and colleague in his community—I believe surprising results can be achieved and with just a little effort from each of us.

So, will you add your bit of time and effort to assist me in what may be called a "grass roots" campaign for members? I will greatly appreciate your assistance.

Sincerely,

*John R. Wells*

★ ★ ★

♦ The Board of Governors, President John R. Wells, Executive Board Chairman W. G. Brock, and President-Elect W. L. Boyd, met in the headquarters office in Chicago on Oct. 13 and 14, 1951.

★ ★ ★

♦ Dr. W. G. Brock, chairman of the Executive Board, will represent the Association at the meeting of the Association of Land Grant Colleges and Universities in Houston, Texas on Nov. 13-15, 1951. This is the third year that the Division of Veterinary Medicine has had a scheduled program during this meeting.

★ ★ ★

♦ Executive Secretary J. G. Hardenbergh represented the AVMA at the First Pan-American Congress on Veterinary Medicine in Lima, Peru, Oct. 20-26, 1951. Dr. Hardenbergh presented two papers entitled "The Work and Organization of the American Veterinary Medical Association" and "The Distribution and Types of Work of Veterinarians in the United States."

★ ★ ★

♦ Dr. J. R. Porteus, chairman of the Committee on Local Arrangements for the 89th Annual Convention in Atlantic City, June 23-26, 1952, met with Executive Board Member S. F. Scheidy of Philadelphia and Assistant Executive Secretary C. D. Van Houweling early in October to lay plans for the 1952 convention. The chairmen of the subcommittees of the Local Committee and for the Women's Activities will be announced in the December JOURNAL.

(Continued on ad page 45)



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\*Rose, H. T.: The Use of Bacitracin in Small Animal Medicine, J. Am. Vet. M.A. 117:306 (Oct.) 1960.



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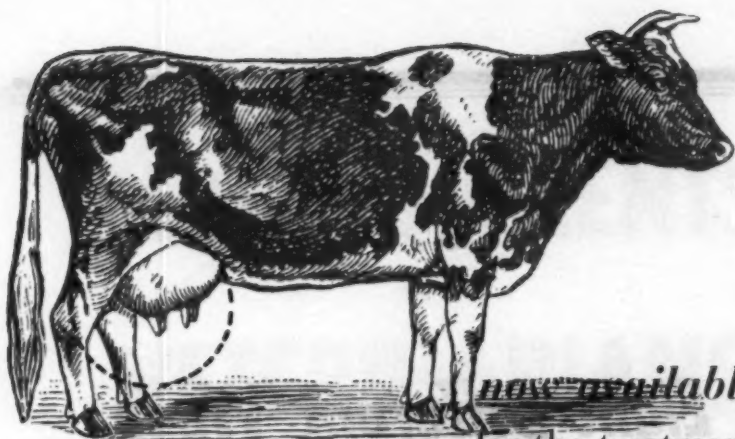
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# Friskies

Authoritative information on the scientific care and feeding of dogs. **No. 11**  
Published by Albers Milling Company (a division of Carnation Company) under the supervision of Dr. E. M. Gildow, B.S., M.S., D.V.M., Director of Research.

## DOG RESEARCH NEWS

### Confusion in Feeding Meat to Dogs

The average man who has kept a dog for years, or the average individual or organization who has handled numerous dogs, still depends to no small extent upon beliefs and opinions. It does not take long to determine this fact when one looks into any phase of this work.

In so common a practice as feeding meat to dogs, if one inquires why meat is fed, he usually gets one of three answers. Some say because the dog is carnivorous and consequently a meat eater. Others say that the dog likes meat. A third states that when meat is fed, the dog is kept in a healthier condition.



Constant research in dog nutrition is carried on at the Friskies Research Kennels.

Then again, if one inquires whether the meat should be raw or cooked, and if cooked, to what extent, and whether it is better to feed beef, lamb, veal, pork, liver, heart or kidney, you quickly obtain a variety of replies that indicates that the

whole subject of feeding meat is generally misunderstood.

### Completeness of Diet is What Counts

Great progress has been made on the question of correct nutrition. And the further we go on this subject, the more we comprehend that it is not so much a question of meat and vegetables and grains that we are considering, but a question of completeness of diet.

We know that meat may be deficient in certain vitamins. That it makes a good deal of difference what kind of meat is fed, and how much. And somebody who has decided on feeding so many pounds of meat and so many pounds of commercial dog food cannot possibly know whether he is feeding correctly from a vitamin standpoint, without an analysis.

### The Solution to the Feeding Problem

It follows that the dog owner is better off to feed a complete diet such as Friskies, exclusively. Feeding Friskies requires no technical knowledge of food elements, and eliminates entirely all guesswork in feeding. Friskies is one meal that is scientifically balanced to provide every single food element dogs are known to need for total nourishment.

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NEEDED WHEN  
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# TEST-FEED KEN-L-BISKIT FOR JUST 30 DAYS!

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- 1 Smooth, glossy coat
- 2 Clear, bright eyes
- 3 Improved stamina



**Proved in championship kennels  
from coast to coast for over 25 years**

Here's why Ken-L-Biskit needs just 30 days to bring about a marked improvement in the appearance and health of your dogs.

**Packed with nutrients!**

Only Ken-L-Biskit contains the wonderful vitamin ingredient Nurgene—and *all* the life-giving nutrients essential for best health.

**Guaranteed uniform texture!**

Ken-L-Biskit's new "controlled moisture" process insures the same minimum moisture content . . . makes possible faster, easier mixing.

**Top palatability!**

Feed tests at independent kennels prove dogs prefer Ken-L-Biskit's rich meat flavor over all other brands!

*the dog food of champions*

# KEN-L-BISKIT



When you prescribe  
for swine influenza...

**NLC** Recommends...

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### You'll find this Product

up to usual high NLC standards in quality and results. And remember, Ammochrome Powder is just ONE of many pharmaceuticals and biologicals that come out of the NLC lab, for listing in our catalog. So while you're ordering a supply of Ammochrome Powder—why not add other needed items.

### indicated in diseases of the respiratory tract

Ammochrome Powder proves particularly helpful in the treatment of Swine Influenza. In composition—a brown granular, water soluble powder . . . made up of 19% potassium guaiacol sulphonate with potassium and ammonium salts in a special aromatic base. Conveniently packaged in 1 lb. containers.

### EASILY ADMINISTERED IN DRINKING WATER...

When contagious flu attacks swine, Ammochrome Powder added to the drinking water will help discharge the mucus—act as a stimulant. Dissolve 1 lb. of NLC Ammochrome Powder in 1 gallon of water—add 6 to 8 ounces of this diluted solution to each 25 gallons of drinking water and mix.

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Ammochrome Powder in 1 ounce capsules, twice daily is prescribed.

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*NLC Deliveries are prompt!*

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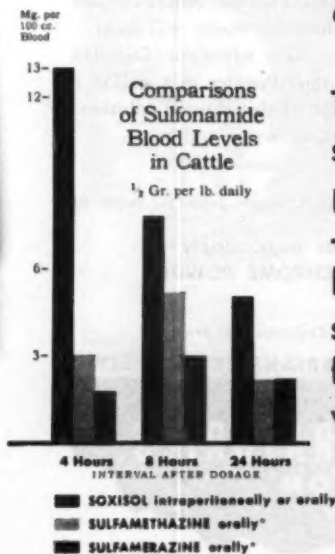


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# Journal of the American Veterinary Medical Association

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## More Highlights of the Eighty-Eighth Annual Meeting Milwaukee, August 20-23, 1951

**Deans of the American Colleges of Veterinary Medicine Meet.**—There were 17 present at the annual meeting of the Association of Deans of the American Colleges of Veterinary Medicine, held during the AVMA convention in Milwaukee. President Bergman presided and appointed Dean Groth to serve as temporary secretary.

Dr. H. W. Johnson, Animal Disease Station, U. S. Bureau of Animal Industry, Beltsville, Md., discussed research in animal diseases and invited the deans' association to visit the Animal Disease Station in 1952. The invitation was accepted.

Also discussed were the preprofessional program, the present military status of students and faculty, the status of the Iowa Veterinary Aptitude Test, progress made with the National Veterinary Examining Board, development of the graduate program in veterinary medicine, contract veterinary medicine in Ontario, and a report on a survey on degrees in the six-year veterinary program.

An appropriate resolution on the death of Dean C. S. Bryan was passed and the president directed that it be sent to Mrs. Bryan, President J. B. Hannah, and the School of Veterinary Medicine of Michigan State College.

The following officers were elected: Drs. E. E. Leasure, Kansas, president; W. A. Hagan, Cornell, vice-president; and A. H. Groth, Missouri, secretary.—*A. H. Groth, Dean, School of Veterinary Medicine, University of Missouri.*

**American College of Veterinary Pathologists Meets.**—The annual meeting of the American College of Veterinary Pathologists was held August 20 at 7:00 p.m., during the annual convention of the AVMA, Dr. A. G. Karlson, Rochester, Minn., president, presiding. Dr. Hilton A. Smith, College Station, Texas, was elected president; Dr. E. A. Benbrook, Ames, Iowa, vice-president; Dr. C. R. Cole, Columbus, Ohio, as a new member of the Council; and Dr. W. T. S. Thorp, Bethesda, Md., secretary-treasurer.

A seminar on neuropathology was planned for the membership, to be held in November of this year. One of the highlights of the meeting this year was the holding of the first examination the day before. This consisted of a comprehensive written examination in the forenoon and a microscopic slide examination in the afternoon, under the direction of Dr. H. R. Seibold, chairman of the Examining Committee.—*W. T. S. Thorp, Secretary.*

**AVMA Committee on Parasitology.**—The members of the Committee on Parasitology held an informal meeting, during the Milwaukee session of the AVMA, to discuss the work of the Committee during the coming year. Four of the five members were in attendance at the convention (only Dr. D. W. Baker who is currently on sabbatical leave from Cornell University and is in South America was not present). New members of the Committee appointed this year are Drs. Charles G. Durbin, filling the unexpired term of Dr. W. E. Swales, who was forced to resign as a result of ill health, and Dr. W. S. Bailey, who is serving as chairman for the coming year. The members of the Committee are making plans for a conference of veterinary parasitologists to be held at the AVMA convention in Atlantic City in 1952. Suggestions regarding this conference will be appreciated.—*W. S. Bailey, Chairman.*

**Zoo Veterinarians Assemble.**—The sixth annual meeting of the zoo veterinarians was held Aug. 20, 1951, at 8:00 p.m., in the Hotel Schroeder in Milwaukee with 30 veterinarians in attendance.

Dr. Charles C. Rife, Atlanta, Ga., reported on (1) a case of tubercular peritonitis in a chimpanzee, (2) pyometra and anemia in a 6-year-old leopard, (3) leptospirosis in a 5-year-old tiger, (4) dystocia and breach presentation in a guanaco, and (5) gangrene of the duodenum in a llama. Dr. E. J. Frick, Manhattan, Kan., described an outbreak of parasitism

(*Haemonchus contortus* and lungworms) in a large herd of bison and discussed the difficulties of treating these ferocious animals.

Dr. Lester Fisher, Lincoln Park Zoo, Chicago, told of the detailed histological studies (12,000 slides) of the organs obtained at the autopsy of the famous gorilla "Bushman" which is being carried out by cooperating medical schools in Chicago. He also described (1) the worming of a baby gorilla with crystoids and butyl chloride, (2) the resection of the wing of a crane under nembutal anesthesia, and (3) the replacement of a rectal prolapse of an anoa.

Dr. R. W. Worley, South Bend, Ind., described the intravenous feeding of a lion cub with aminosul® and dextrose for five days. Dr. Donald Schmidt, Brookfield Zoo, Chicago, told of a case of pneumonia in a 670-lb. sea lion which responded to daily injections of 3.6 million units of penicillin. Dr. Patricia O'Connor read a case report submitted by Dr. Frank McClelland, Buffalo, N. Y., on onchocerciasis in a chimpanzee.

Dr. Leonard J. Goss, New York Zoological Park, recommended that zoo veterinarians familiarize themselves with the new federal regulations concerning the importation of galliforme, columbiforme, and anseriforme birds, that they may be in a position to caution their zoos to make prior arrangements with the federal agencies concerned (BAI and USPHS) before attempting to import birds of these orders. He emphasized the importance of a complete parasite examination, including blood parasites, ameba, and external parasites of newly imported specimens, as a precautionary measure for the personnel as well as the animals. Dr.

Goss answered various questions regarding the treatment of specific conditions in zoo animals.

At 8:00 p.m. the following morning, the group met at the Washington Park Zoo in Milwaukee. Mr. George Speidel, director, conducted the party on a tour of the zoo, including the exhibits, kitchen, hospital quarters, and the clay model of the proposed new zoo for Milwaukee.—*Patricia O'Connor, Secretary.*

• • •  
**Phi Zeta Annual Meeting.**—The National Society of Phi Zeta held its annual meeting at the Schroeder Hotel in Milwaukee on August 20, during the AVMA convention. Dr. James D. Grossman served as temporary chairman. Dr. R. A. Runnells, of the committee appointed to consider rewording of the certificates of membership, presented a facsimile copy of the certificate which they suggested be used when the present supply is exhausted. Their report was accepted.

Dr. Grossman read a report of the committee appointed to consider changing the constitution to provide for the election of officers at the annual meetings in the odd-numbered years. This report was accepted and is to be voted upon at the next annual meeting.

A recommendation of the Epsilon Chapter at Alabama Polytechnic Institute, Auburn, proposed a change in Article IV, Section 2 of the constitution, i.e., "Election of new members shall take place at regular meeting of the Society held during the first half of the second term of each academic year." The recommendation was approved.

The new officers elected to the executive committee are Drs. William S. Monlux of Texas to replace C. R. Cole of Ohio; Robert Schirmer of Michigan to replace R. E. Habel of Cornell; and Donald G. Lee of Pennsylvania to succeed himself.

A report of the treasurer was presented. This report is included in the minutes.

The granting of a charter to establish a chapter at Washington State College has been approved by all eight existing chapters.

The report of the committee to consider ways and means to stimulate more interest in colleges that do not now have chapters of Phi Zeta was held over.—*E. A. Hewitt, National Secretary.*

• • •  
**Veterinary Physiologists and Pharmacologists Meet.**—The veterinary physiologists and pharmacologists held their annual dinner meeting on August 20 during the AVMA convention in Milwaukee, with 30 in attendance.

The meeting opened with brief remarks by Dr. D. W. Ogilvie of the British Imperial Chemical Industries who was visiting in this country from England. A proposal submitted by the Committee on Organization outlined an organization which parallels the College of



President-Elect W. L. Boyd (left) and First Vice-President E. A. Grist congratulate each other on their election to important offices in the AVMA at the annual meeting in Milwaukee, Aug. 20-23, 1951.

**Veterinary Pathologists.** After a lively discussion, the opinion was that this group needs to become part of the general scientific circles instead of setting itself further apart by the formation of a separate and distinct organization within the veterinary profession. It was concluded that the investigators and teachers of veterinary physiology, as well as the entire veterinary profession, need more contacts and co-operative studies with scientists in the livestock industry, human medicine, and in the general field of science. To this end, all members were encouraged to attend and participate in a wider variety of scientific meetings.

By group vote, the succeeding officers were directed to prepare articles of formal organization for action at the next meeting which would create an inclusive rather than an exclusive society of veterinary physiologists and pharmacologists.

Officers for the coming year are Drs. David K. Detweiler, Pennsylvania, president; and

Robert W. Dougherty, New York, secretary-treasurer.—*L. Meyer Jones, Retiring President.*

• • •

#### **The Veterinary Radiological Conference.**

The first, of what is hoped will be a series of veterinary radiological conferences, was held on August 21 during the annual meeting of the American Veterinary Medical Association in Milwaukee, Aug. 20-23, 1951.

The acting chairman stated that he felt there is a need for persons interested in veterinary radiology to exchange views on this subject.

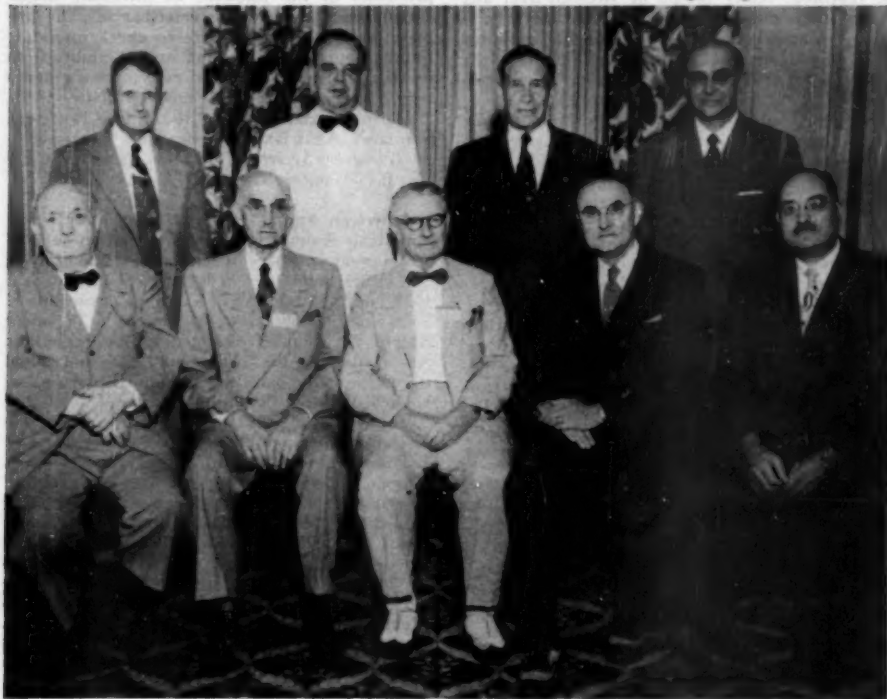
The chairman asked for expressions and viewpoints. Among the questions raised were:

Should a veterinary school have its own radiology department?

How much time should be allotted to the teaching of radiology in the curriculum?

What steps can be taken to stimulate more interest within the veterinary profession in radiology?

#### **Past-Presidents of the AVMA in Attendance at the Milwaukee Meeting, Aug. 20-23, 1951**



Front row (left to right)—Drs. L. A. Merillat (1924-25), T. H. Ferguson (1929-30), R. S. MacKellar, Sr. (1934-35), H. D. Bergman (1938-39), and C. W. Bower (1943-44).

Second row—Drs. B. T. Simms (1946-47), W. A. Hagan (1947-48), L. M. Hurt (1948-49), C. P. Zepp, Sr. (1949-50).

Dr. T. A. Sigler (1926-27) and Dr. James Farquherson (1944-46) attended the convention but were not present when the picture was taken.



What are the desired qualifications for teaching veterinary radiology?

Should we endeavor to hold at least one annual conference of veterinary radiologists?

How is one to obtain postgraduate work in veterinary radiology?

The following suggestions were approved by the conference.

1) The value of veterinary radiology must be brought more fully to both the veterinary profession and the layman. As an initial step in this direction, the following men agreed to submit papers for presentation at the 1952 meeting of radiologists during the American Veterinary Medical Association convention in Atlantic City:

Dr. A. E. Broome—"Hazards of Radiation or Protection from Radiation."

Dr. M. A. Emmerson—"Radiation Therapy."

Dr. Francis A. Spurrell—"Diagnosis by Roentgenology."

2) Everyone is concerned with adequate protection from radiation. It was suggested that in teaching, safety should be stressed over any other single phase.

3) An annual conference should be continued and should be held in conjunction with the American Veterinary Medical Association meeting.

4) That radiological conferences and discussions should be held at state and sectional meetings whenever possible.

5) The acting chairman, Dr. W. C. Banks, College Station, Texas, was made chairman for the coming year.

The chairman feels that the conference was extremely interesting and wishes to thank all who attended.—*W. C. Banks, Chairman.*

**National Association of Federal Veterinarians Meets.**—Fifty-three members of the National Association of Federal Veterinarians attended the unofficial meeting of the Association from 19 states and the District of Columbia. In view of the fact that the meeting each year with the

#### Florida Is Proud of Her Presidents



AVMA President John R. Wells and the Women's Auxiliary president, Mrs. C. E. Bild, both reside in Florida.

American Veterinary Medical Association is unofficial, no business was conducted. However, all members in attendance introduced themselves, indicated how long they had been members, and expressed their views.

A great deal of interest was taken in the information furnished by Dr. B. T. Simms, chief, Bureau of Animal Industry, with respect to the budget for the coming year and the courtesies shown members of the Bureau by members of the appropriation committee.—*L. T. Hopkins, Secretary.*

#### Chief Livestock Sanitary Officials Assemble.

—Twenty-one livestock sanitary officials representing 19 states attended the national assembly of Chief Livestock Sanitary Officials held Aug. 20, 1951, during the annual meeting of the AVMA in Milwaukee. The following subjects were discussed: the civilian defense program from the state and national level, especially biological warfare defense; the scabies problem in sheep and efforts toward final eradication; problems in the issuance of interstate health certificates by practicing veterinarians, the primary problem being failure to check interstate requirements before issuing and eligibility both of animal identification and veterinarian's signature. Plans for the fall meeting, Nov. 14-16, 1951, in Kansas City, of the U. S. Livestock Sanitary Association were also discussed.—*H. G. Geyer, Secretary, National Assembly, Chief Livestock Sanitary Officials.*

**American Animal Hospital Association.**—The American Animal Hospital Association held its semiannual business meeting and luncheon at the Hotel Schroeder in Milwaukee on Aug. 22, 1951, during the AVMA annual convention. Fifty-one members were present. President Ralph E. Ruggles outlined activities of the Association for the forthcoming year and stated the preliminary plans for the annual meeting to be held at Hotel Huntington, Pasadena, Calif., April 30-May 3, 1952. Six new hospitals were elected to membership at this meeting.

The A.A.H.A. is planning several section or regional meetings for the winter. The first will be held at Burlington, Iowa, in conjunction with the Midwest Small Animal Association, Nov. 14-15, 1951.—*Wayne H. Riser, Executive Secretary.*

#### American Veterinary Exhibitors Association Meets.

—The American Veterinary Exhibitors Association, Inc., held their annual dinner and business meeting on Sunday, Aug. 19, 1951, during the AVMA convention in Milwaukee.

Mr. W. L. McLarty, assistant manager of the Toronto Convention and Tourist Bureau, was a guest of the Association at this dinner session and presented information about the handling of exhibits to be shipped into Canada for the 1953 convention. He also answered a number



of questions raised by the exhibitors. Dr. J. G. Hardenbergh and Mr. J. J. Shaffer of the AVMA staff also were present to give exhibitors information about dates, hotel headquarters, etc., for the conventions to be held in 1952 and 1953.

Members of the Executive Committee for the following year are Mr. Frank E. Bickal, Fort Dodge Laboratories, Inc., Fort Dodge, Iowa, president; Dr. Heinz Siedentopf, Fromm Laboratories, Inc., Grafton, Wis., vice-president; Mr. Walter E. Schwartz, Wilson & Co., Inc., Chicago, secretary-treasurer; and Mr. Dan J. Barber, Barber Veterinary Supply Co., Richmond, Va., and Dr. R. J. Harris, the S. E. Massengill Co., Bristol, Tenn. Advisory trustees are Drs. J. L. Davidson, the Upjohn Co., Kalamazoo, Mich., and E. C. Jones, Norden Laboratories, Lincoln, Neb.—*Frank E. Bickal, President.*

• • •  
The Kansas State Veterinary Alumni Group Dinner.—Dean E. E. Leasure presided during

the Kansas State Alumni Association dinner on Aug. 22, 1951, during the AVMA annual meeting in Milwaukee. About 215 Kansas State alumni, their wives, and children were present. Dr. Gordon J. Marold and Mrs. C. A. Brandly, who were in charge of the dinner arrangements as a local committee, were introduced. The alumni were asked to stand by classes in order that they might become better acquainted. Dean Leasure summarized the happenings on the campus and in Manhattan for the school year 1950-1951 for the benefit of the alumni. He also told of the proposed new veterinary clinic unit for which the legislature appropriated funds at its last session.

The meeting concluded with a motion picture entitled "The 1950-1951 Basketball Highlights of Kansas State College." The meeting adjourned to attend the president's reception and dance.—*E. E. Leasure, Dean.*

• • •  
San Francisco Veterinary College Alumni.—Dr. Joseph M. Arburua, San Francisco, reports

#### Winner of the 1951 AVMA Humane Act Award



Burr Collett, 16 years old, of Barstow, Calif., won the 1951 AVMA Humane Act Award because of his outstanding humane work on behalf of dogs and cats in his area. He himself has sheltered and secured homes for over 200 stray animals, and through a weekly column in his local newspaper and over the radio, he has helped Barstow to build a national reputation for kindness to animals.

that he attended the AVMA convention as a "lone wolf." The San Francisco Veterinary College, which he attended, closed in 1918 but Dr. Arburua reports that "though there are some 70 or 80 of us still left, distance precludes the attendance of more than one or two at an AVMA convention. In Milwaukee, there were only three of us: myself, Dr. Garbutt of the New York S.P.C.A., and Dr. Kuttler, head of the U. S. BAI Tuberculosis Eradication Division. I did not see the former (just heard he was there) and did not see the latter until the last day. Obviously, we had no dinner together."

#### Iowa State Veterinary College Alumni Meet.

—On Aug. 22, 1951, during the Milwaukee session of the AVMA, 200 alumni of the Iowa State College School of Veterinary Medicine held a dinner meeting in the Hotel Medford. Many more applied for tickets, but the seating capacity was limited. Dr. Frank L. Gentile, (ISC '42), Milwaukee, served as local chairman, and Dr. Everett T. Anderson (ISC '37), Dixon, Ill., was master of ceremonies. Dr. L. M. Hurt (ISC '04), Sierra Madre, Calif., represented the earliest class.

A monologue by Dr. Anderson stamped him as a comedian worthy of the vaudeville circuit. Several alumni of special professional note were introduced and Dean H. D. Bergman (ISC '10) presented Mrs. Charles E. Bild, Miami, Fla., president of the Women's Auxiliary to the AVMA, an Iowa State alumna and wife of Dr. Bild (ISC '33). Dr. Margaret Sloss (ISC '38), Ames, Iowa, president of the national Women's Veterinary Medical Association, was also introduced.

Dean Bergman then told the group of current affairs and activities at Iowa State College, and particularly in the Division of Veterinary Medicine, until time of adjournment to attend the President's Reception. He also extended an invitation to attend the veterinary alumni homecoming at Ames on October 13. As is always true of such an alumni get-together, there was much of good fellowship and reminiscing.—H. D. Bergman, Dean.

#### The Ohio State Veterinary Alumni Association Dinner.

—The annual meeting of the Ohio State Veterinary Alumni Association was held in Milwaukee at the Plankinton House at 6:30 p.m. on Aug. 21, 1951. Dr. J. R. Curtis ('38) presided as president. He introduced various guests, as well as Dean Walter R. Krill, who spoke briefly concerning affairs at the College and extended an invitation to each alumnus to visit the institution to see the numerous changes which have occurred.

Mr. Tom Johnson, field secretary of the Ohio State University Association, presented an illustrated talk showing some of the improvements and alterations on the campus. Quite a

few pictures of the new Union were presented.

Officers elected for the 1951-1952 season are Drs. R. A. Hendershott, president; Sam Elmer, vice-president; F. J. Kingma, secretary-treasurer. The executive board member is Dr. John Mills. Approximately 270 attended the banquet.—J. R. Curtis, President.

#### New York State Veterinary College Alumni Dinner.

—One hundred alumni of the New York State Veterinary College at Cornell University renewed, and made new, friendships at a dinner meeting in the Hotel Schroeder, Wednesday night, Aug. 22, 1951, during the Milwaukee session of the AVMA. Dr. W. A. Hagan, dean, spoke briefly of the activities at the school and outlined the progress in moving the school to a new site, on the Cornell campus, approximately 1 mile east of its present location. He also showed colored slides of new buildings and other changes on the campus. This brought all those present up-to-date, since several had not seen the campus in many years. Dr. C. E. DeCamp of Scarsdale, N. Y., president of the association, presided.

In response to the request for anything our alumni association desires to brag about: (1) It had one of the largest, if not the largest, number of alumni on the AVMA program; (2) we had one of the finest, if not the finest, alumni dinner groups at Milwaukee; (3) we feel we are always entitled to brag of being Cornellians.—C. E. DeCamp, president.

#### Ontario Veterinary College Alumni Meet.

A successful dinner was held by Ontario Veterinary College alumni at the Medford Hotel, Milwaukee, on August 22, in conjunction with the 1951 AVMA convention. Eighty-six graduates and wives were present.

Dr. J. A. Campbell spoke with regret of the absence of Dr. A. L. MacNabb, principal of the College, but was pleased to report a steady improvement in his health. Dr. Campbell suggested that a campaign be instituted to have a bust of Dr. MacNabb, who has been ill for more than a year, made for presentation to the College, and that Dr. T. Lloyd Jones, acting principal, act as treasurer of the campaign fund. Dr. A. G. Misener of Illinois then invited all United States O.V.C. graduates present to make a contribution. This resulted in the collection of \$240.

Dr. L. A. Merillat expressed his pleasure that the recently organized O.V.C. Alumni Association was thriving and recalled that he had organized alumni meetings at AVMA conventions for many years.

Dr. E. W. Krueger, Evansville, Ill., was in charge of arrangements for the dinner, and Dr. Misener was chairman. At the head table were Mrs. H. S. MacDonald of Toronto, president-elect of the Women's Auxiliary to the AVMA;

Drs. L. A. Merillat, Chicago; A. E. Cameron, Ottawa, Ont.; J. Gordon Anderson, Calgary, Alta.; L. C. Swan, St. Catharines, Ont.; J. A. Campbell, Toronto, Ont.; and T. Lloyd Jones, Guelph, Ont.—*T. Lloyd Jones.*

• • •  
**Kansas City Veterinary College Alumni Dinner.**—The Kansas City Veterinary College alumni dinner, held in Milwaukee during the annual meeting of the AVMA, was attended by 53 alumni, 1 faculty member, and 28 women. The president (1950-51) of the Women's Auxiliary to the AVMA, Mrs. Dennis Coughlin, and the president-elect of the AVMA, Dr. W. L. Boyd, were in the group. The oldest class was represented by Dr. Zackary Veldhuis

(KCV '04) who is still in practice at Hamilton, Mich., despite his age of 82 years.

Dr. J. Duncan Ray (KCV '17), director of the laboratories of the Corn States Serum Co., presided at the business meeting following the dinner. New officers for the coming year are Drs. Carl E. Wicktor (KCV '17), chief veterinarian of the Los Angeles County Sanitary Board, president; Joseph E. Weinman (KCV '13), professor of anatomy at the School of Veterinary Medicine, University of Missouri, vice-president; Chas. D. Folse (KCV '10), retired, was reelected secretary-treasurer and editor of the K.C.V.C. Quarterly, a 16-page bulletin issued every three months.—*Chas. D. Folse, Secretary.*

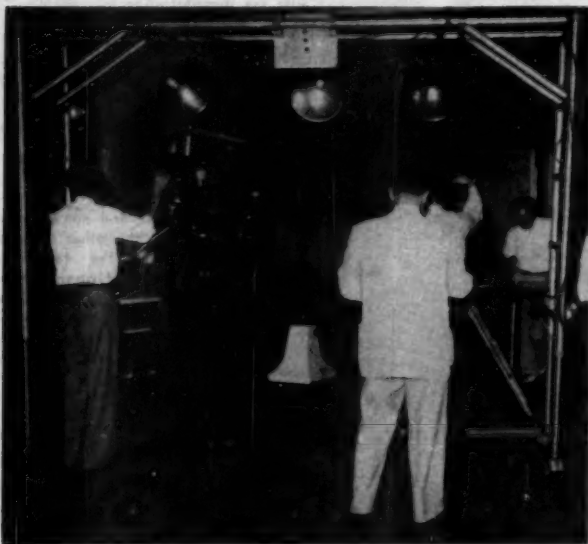
### Television at the Milwaukee Meeting

The 3,128 people attending the eighty-eighth annual meeting of the American Veterinary Medical Association in Milwaukee, Aug. 20-23, 1951, had a rare treat in seeing the first telecast ever attempted for educational purposes in veterinary medicine.

Through the facilities and generosity of Allied Laboratories, Inc., and Radio Corporation of America, four, one-hour closed circuit telecasts were made of many phases of veterinary medicine and surgery.

Plankinton Hall's 1,150 seats were filled to capacity at each TV program with men

and women who were unanimous in their praise of this new feature. The surgical demonstrations were projected on two, 6 by 9 ft. screens placed on the stage. The actual operations and techniques were performed two floors below in Mechanics Hall, where television technicians and the program participants worked under extreme difficulties due to the lack of a stage and all the "fixings" which are ordinarily used with a television show, to say nothing of the absence of operating room and laboratory facilities. Consequently, much improvisation was necessary. Yet, despite the



"Behind the scenes" prior to one of the television demonstrations. Note the portable television cameras and battery of lights in the foreground, with the operating tables, oxygen equipment, and "wall" in the background.

handicaps offered by animal patients in comparison to human patients subjected to similar treatment or surgery, the versatility and talents of our members was proved by the fact that the show went on, and the audience saw smoothly performed demonstrations on the viewing screens.

Thanks to the willingness and abilities of the many veterinarians who participated, together with the expert directing of Mr. Walter L. Lawrence of Radio Corporation of America, the end product was good educational material and served the intended purpose.



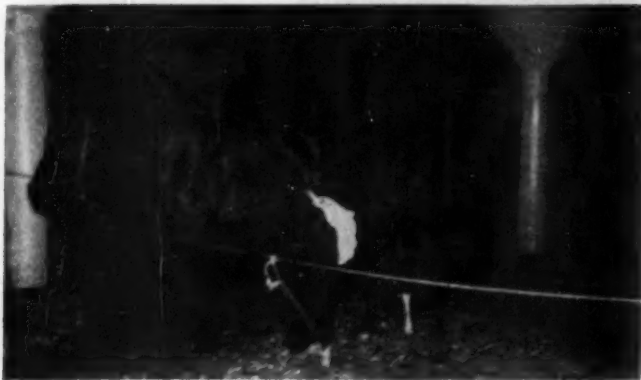
Mr. W. L. Lawrence from Radio Corporation of America's public relations department (with earphones), responsible for the technical arrangements and telecasts, sits at the "controls" during a demonstration.

Practically everyone participating in the demonstrations had no prior television experience. It is far different than radio, for on television it must be said and done at that time and no other. It also differs from movies in that there is no retake of a bad scene.



Dr. W. A. Young, AVMA treasurer, and television program chairman and coordinator (at microphone and visible in the "viewer" adjacent to the operating scene), introducing the first television demonstration (large animal anesthesia) and the narrator, Dr. James Farquharson. The viewer in which Dr. Young can also be seen was used by the narrators to view the operations in order to correlate the commentary with the demonstration.

The telecasting opened Tuesday morning, August 21, with the first hour given to demonstrations of anesthesia. Tuesday afternoon, the hour was divided between



The horse and pony, along with all the other animals used for the television demonstrations, were stabled in the Auditorium basement, which was adjacent to the area where the demonstrations were staged.



Dr. Kenneth Bone demonstrates the use of oxygen equipment, in conjunction with anesthesia and as a therapeutic practice, during the first hour of television demonstrations. Dr. Robert Knowles was the narrator for these demonstrations.



Dr. C. L. Nelson performs an autopsy on a chicken as part of the demonstration on diagnosing poultry diseases. Dr. C. D. Lee was the narrator of this portion of the program.



Dr. C. H. Cunningham (right), who narrated the demonstrations on laboratory procedures and public health, substituted for the late Dean C. S. Bryan. Drs. H. J. Stafseth (left) and L. R. Davenport were two of the participants in this section of the television programs.



Dr. J. R. Dinsmore introduces the gastroscope and assists Drs. W. H. Riser and R. L. Storm with one of the three small animal surgical demonstrations during the third hour of the television program. Dr. C. F. Schlotthauer was the narrator for these demonstrations.

poultry diagnosis and laboratory technique.

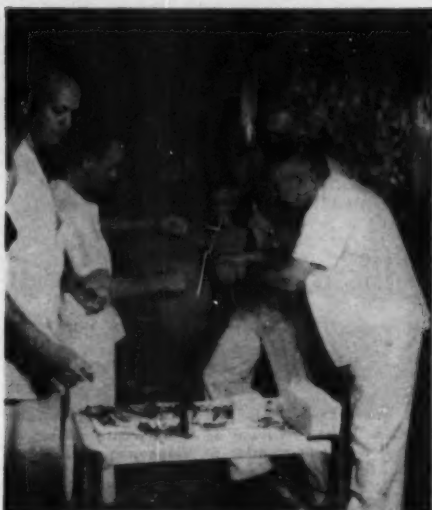
Wednesday forenoon was devoted entirely to small animal surgery, restraint, and anesthesia. The afternoon telecast was reserved for large animal surgery.

Dr. E. J. Frick, director of clinics, Kansas State College, and narrator for the large animal telecasts, expressed great interest and hope for the future use of television in veterinary education. It can truly be said that seeing is believing. Television

enables large numbers of individuals to get a close-up of what transpires on the operating table or in the test tube. In most parts of the telecasts, the audience received a better "look-see" of the procedures than persons who were standing only 15 ft. from the actual operation.

Despite the trials and tribulations of those who worked to put the program on, there were moments of satisfaction and downright pleasure in knowing that the job was being accomplished. A bit of humor was needed, and during the last operation, which was a rumenotomy on a cow





Dr. G. R. Moore performs a rumenotomy on a cow, another large animal surgical demonstration presented during the fourth hour of the television program.

performed by Dr. G. R. Moore, a startling discovery divulged the presence of a 500-cc. bottle of normal saline solution in the patient's rumen.

Other unforeseen developments added to the perplexity of the productions, but when



Dr. E. R. Frank performs a cesarean section on a sow, one of the large animal operations on the television program. Dr. E. J. Frick was the narrator for these demonstrations.

reviewed in retrospect have a humorous side. For example, the sow who was scheduled to be the cesarean patient farrowed the day before, and the dog used for the gastro-scope demonstrations was fed two cans of dog food about an hour before the operation was scheduled.

More details of the television programs



Dr. James Farquherson (left); Dr. E. A. Cahill, president of Allied Laboratories; Mr. K. F. Valentine, president of Pitman-Moore Co.; and Dr. W. A. Young. The television demonstrations were made possible at the AVMA eighty-eighth annual meeting in Milwaukee by the cooperation of Allied Laboratories and the Radio Corporation of America.

Dr. W. M. Coffee, AVMA president (left), and Dr. W. A. Young discuss the television program prior to the final demonstration.



will be found in the "Proceedings Book," which will reach members of the American Veterinary Medical Association soon after the first of the year.

These telecasts were made possible by a large number of fine people working under

difficult conditions and by taxing their talents to the very limit to produce something new and informative for our profession at the AVMA annual meeting.—W. A. Young, D.V.M., Chicago, Ill.

#### Some of the Section Officers and Television Participants



Back row (left to right)—Drs. C. D. Lee, narrator, poultry demonstrations; C. L. Nelson, demonstrator in poultry diagnosis; W. A. Young, chairman and coordinator of the television programs; C. F. Schlotthauer, narrator, small animal surgery; H. J. Stafseth, participant in public health demonstration; C. H. Cunningham, narrator, laboratory and public health demonstrations; James Farquharson, narrator, animal anesthesia demonstrations.

Front row (left to right)—Drs. C. L. Miller, chairman, small animal section; G. W. Jensen, secretary, section on general practice; L. R. Davenport, chairman, section on public health; N. B. King, participant in laboratory techniques demonstrations.

# SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

## Curare in Canine Surgery

DEETS PICKETT, D.V.M., M.S.

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SINCE ETHER was first used as an anesthetic for a surgical operation over a hundred years ago, there has been a constant demand and search for an anesthetic with safety as a primary objective, but with the depth and duration of anesthesia, the comfort of the patient, and the convenience of the surgeon also as extremely important objectives. Various anesthetics, and combinations of anesthetics, have been used with varying degrees of success.

Complete relaxation of abdominal muscles is of particular concern to the surgeon in many operations. Reasonably complete relaxation has been achieved in many cases by pushing the anesthetic to the extreme margin of safety. This extreme margin is so narrow in certain conditions, such as shock or debilities of various kinds, that fatalities have frequently occurred.

### LITERATURE CITED

According to Cole,<sup>1</sup> to obtain relaxation in anesthesia by the use of one drug required a higher concentration of the agent in the blood, which imposes on the patient a penalty deeper than is necessary to obtain merely anesthesia. In 1946, Knight<sup>2</sup> made the statement that deep anesthesia is more shock-producing than surgical trauma. According to the *Squibb Memoranda*,<sup>3</sup> fifteen minutes of deep, third-plane anesthesia is as harmful to the patient as two hours of first-plane anesthesia.

It would seem that a drug giving maximum relaxation combined with the safety and lack of secondary irritations and dangers of third-plane anesthesia would be almost an ideal adjunct to general anesthetics. In 1942, Johnson and Griffith<sup>4</sup> published a paper concerning the use of curare as an adjunct to general anesthesia in 25 patients. According to their paper, they administered the

drug intravenously to patients under general anesthesia and found that it acted quickly, producing in less than a minute a dramatic and complete relaxation of skeletal muscles. Since then, curare has become a standard drug in the armamentarium of thousands of anesthetists in human hospitals.

It is frequently difficult for a veterinarian with his lack of skilled help and costly apparatus to obtain a desirable degree of relaxation. Every veterinary surgeon has had the experience of working over a patient which has started to breathe heavily, with a consequent fluctuating abdomen and intestines protruding through the incision. At such times, it would have been a blessing to have had a drug at hand which would give complete relaxation quickly and harmlessly.

According to Bennett,<sup>5</sup> the action of curare is upon the delicate structure of fine nerve fibers at the terminus called the motor end plate. It is here that curare prevents acetylcholine acting on the nerve-muscle junction, thus producing a paresis of the muscle. This peripheral motor flaccid paralysis affects, in general, the nerve endings of all striated or voluntary musculature, but selectively affects first the muscles of high chronaxie, such as the short muscles of the eyes and throat, and later, the larger muscles of the head, neck, extremities, intercostals, and diaphragm.

Sollman<sup>6</sup> wrote that curare given intravenously causes a temporary fall of blood pressure which returns rapidly to normal with moderate doses. The heart, according to Sollman, is not affected except with very large doses. The autonomic ganglia, the vagus, the vasomotor, salivary, pupillary, and other ganglia are depressed but not usually as strongly as with nicotine. In discussing the effects on circulation, he stated that the first effect of curare on the circulation consists in the fall of blood pressure due to peripheral vasomotor depression.

Cullen<sup>7</sup> wrote that the elimination of curare is accomplished in about two hours by destruction in the liver and excretion through the kidney. Cullen<sup>8</sup> later wrote that there is no evidence that liver or kidney impairment prolongs or intensifies the action of curare and there is apparently little or no accumulative effect on repetition of the drug after an hour or two and that no temporary or permanent organic damage had been shown to be due to the direct effect of curare.

It is generally agreed by all investigators that sensory nerves are not affected by curare and that curare has absolutely no analgesic effect.

Curare has been a boon to anesthetists in human hospitals. Griffith and Johnson<sup>4</sup> cited an

A portion of the material used in this paper was taken from a thesis written as part of the requirement for a Master of Science degree at the Colorado A. & M. College, Fort Collins. Published by permission of the dean of the Graduate School.

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The writer acknowledges the assistance of Drs. James Farquharson, Lloyd Moss, and A. D. Rankin. Their aid was invaluable in the series of 400 experiments.

example of a 250-lb. man who insisted on general anesthesia for hemorrhoidectomy. Under cyclopropane, relaxation of the anal sphincter was unsatisfactory. Immediately upon the administration of 100 units of curare, complete relaxation was obtained and the operation was easily performed. They further cited several cases of appendectomy in healthy young adults undergoing operation for an acute infection, and who were particularly resistant to anesthesia. When the surgeon began to close the peritoneum, the abdominal muscles became tense. Within one minute after administration of 100 units of curare, the abdomen was "soft as dough" and the surgeon was able to finish the operation without difficulty.

Bennett<sup>7</sup> wrote that the so-called lethal point of curare is questionable because large doses are tolerated if respiration can be continued. According to him, there is no increased tolerance to repeated doses of curare. McIntyre<sup>8</sup> gave as much as 50 times the lethal dose of curare to dogs without fatality by keeping up artificial respiration. Cash and Hoekstra<sup>9</sup> wrote that, in the laboratory, deaths in animals only occurred from asphyxia as the result of intercostal paralysis. According to their article, 100 times the so-called lethal dose of curare has been given, with no animal deaths as long as respiration was maintained.

Perlstein and Weinglass<sup>10</sup> wrote that by giving artificial respiration for the duration of the experiment, they kept 2 completely curarized dogs alive for forty-five hours and thirteen minutes and for twenty-seven hours and fifteen minutes, respectively. A third lived only two hours and fifty-five minutes. When autopsied, these dogs showed cardiac dilatation and congestion of the viscera.

Perlstein and Weinglass<sup>10</sup> advanced the idea that, because of bradycardia being noticed frequently, it would be considered possible that acetylcholine was the cardiotoxic agent. Because of this, an attempt was made to keep the next 4 curarized dogs alive by continuous atropinization. Two dogs lived less than an hour after curare and atropine were injected intravenously. One animal died within five minutes.

This agreed with our own work. Atropine is apparently definitely contraindicated when curare is used.

#### EXPERIMENTAL

While evaluating curare as an adjuvant to general anesthesia, we remembered that the practicing veterinarian is interested in the care of dogs as individuals. A drug producing excellent results in 95 per cent of the cases, with a remaining 5 per cent mortality, would be valueless to him in his practice. The additional conveniences afforded by such a drug could not compensate for the loss of patients and reputation. For that reason, this study was based on the individual dog. When a certain dose of curare or combination of curare and anesthetic caused danger symptoms, that dose of curare or combination was eliminated as unsatisfactory.

The 35 dogs used in this series of experiments were of various ages, sizes, and breeds. Each problem, with the exception of those determining changes in blood pressure, was carried out on 20 animals. There were over 400 experiments.

Curare was tested in both light-plane anesthesia and surgical-plane anesthesia. With pentothal sodium, light anesthesia was considered to be that stage which is entered when consciousness has completely gone. It is characterized by unconsciousness with remaining activity of the sympathetic reflexes and the voluntary muscle reflexes. Surgical anesthesia was considered to be that stage which is entered when the sympathetic and voluntary muscle reflexes have disappeared. It is characterized by unconsciousness and absence of reflexes. That is, stimulation may be applied to any field without causing a sympathetic muscular or respiratory response.

With nembutal,<sup>®</sup> light anesthesia was produced by a measured dose of  $\frac{3}{4}$  gr./5 lb. of body weight. So-called surgical anesthesia was produced by giving 1 gr. of nembutal per 5 lb. of body weight.

The curare used in this study was a physiologically standardized extract of curare secured from the Amazon forests. It is supplied in sterile ampules, 1 cc. of the solution containing 20 units of a standard curare. In as much as this concentration was found to be too great for satisfactory dosage and administration control in dogs, a dilution of 1.9 per cent with sterile physiological saline solution reduced the strength to two units of curare per cubic centimeter.

#### ANESTHETICS TESTED WITH CURARE

The anesthetics tested with curare were chosen because they are those most used by veterinarians. They were ether, nembutal, and pentothal sodium. All injections of curare were made intravenously through the entire series of experiments.

The drug which was used as an antidote was prostigmine, 1:2,000.

Curare was first injected in unanesthetized animals. It was found that  $\frac{1}{4}$  unit, when administered without an anesthetic, produced little detectable effect. Complete respiratory paralysis occurred in 1 dog when  $\frac{1}{2}$  unit was administered. Great respiratory depression necessitating artificial respiration was produced in several



dogs by  $\frac{3}{4}$  unit. Prostigmine was administered to several. Because undesirable symptoms had been shown with the injection of  $\frac{1}{2}$  unit in the unanesthetized dog, the simultaneous use of curare and nembutal was started with  $\frac{1}{4}$  unit per pound of body weight and then increased only  $\frac{1}{8}$  unit per pound of body weight until an unsafe margin was discovered.

**Nembutal ( $\frac{3}{4}$  gr.) Light-Plane Anesthesia.**—One-fourth unit of curare per pound of body weight given alone showed little effect, but  $\frac{1}{4}$  unit of curare used simultaneously with a light-plane nembutal anesthesia produced a remarkable effect. The animals, which were hung at a 45-degree angle, had a marked abdominal tension and were struggling and crying. Within a few seconds following the injection of  $\frac{1}{4}$  unit of curare, the struggling and crying ceased. The animals hung there more completely relaxed than they would have been had they been given a full surgical dose of nembutal. Sixteen of these dogs, however, did show some degree of pedal reflex. The time of induction varied from twelve seconds to one and a half minutes. The duration of maximum action varied from six minutes to twenty-five minutes. Micturition, defecation, salivation, and muscular tremors were negative, and there were no other reactions. The chief disadvantage of the  $\frac{1}{4}$ -unit injection was the relatively short duration of the maximum relaxation in some of the dogs.

When a  $\frac{3}{8}$ -unit injection of curare was made during nembutal light-plane anesthesia, the time of induction varied from ten seconds to one minute and a half. The duration of maximum action varied from nine to thirty minutes. Crying and struggling ceased almost immediately. Slight pedal reflex occurred in 12 dogs, but the abdominal and skeletal relaxation was so complete that any surgery could be undertaken with great convenience to the surgeon.

The various changes in the rate of the pulse and respirations were well within those normally seen under nembutal anesthesia.

Following the injection of  $\frac{1}{2}$  unit of curare, the symptoms were approximately the same as those following the  $\frac{3}{8}$ -unit dose. The duration of action varied from twelve to thirty-five minutes. Although it was not necessary to give artificial respiration to any of the dogs, 2 of them developed a cyanosis. The results of these experiments indicate that  $\frac{1}{2}$  unit of curare used with light-plane nembutal anesthesia may be dangerous.

**Nembutal (1 gr.) Surgical Anesthesia.**—None of the dogs receiving 1 gr. of nembutal per 5 lb. of body weight had complete abdominal relaxation. There was slight struggling and crying by some of the dogs while hung at a 45-degree angle.

The results of  $\frac{1}{4}$ - and  $\frac{3}{8}$ -unit doses of curare with surgical nembutal anesthesia

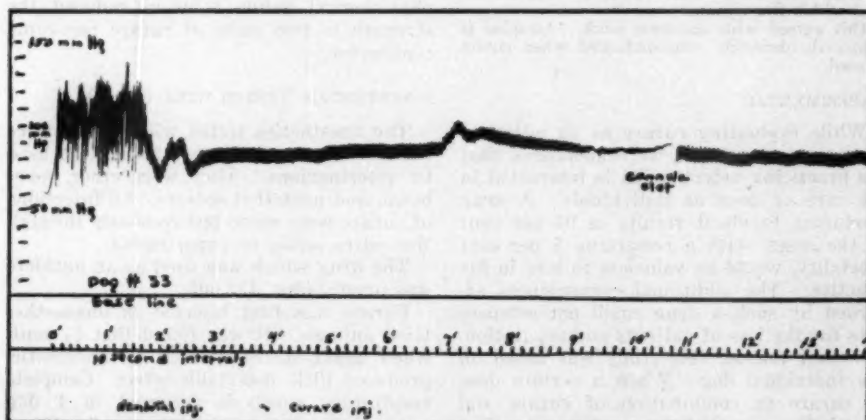


Fig. 1.—Kymographic tracing of dog (No. 33) under nembutal surgical anesthesia following  $\frac{3}{8}$  unit of curare per pound of body weight.



were essentially the same, with the exception that with the  $\frac{3}{8}$ -unit of curare, duration of complete relaxation in some cases lasted as long as an hour.

After the  $\frac{1}{2}$ -unit dose of curare with surgical nembutal anesthesia, artificial respiration was necessary in 2 dogs. Prostigmine was administered to both. Six of the other dogs developed shallow respiration.

**Pentothal Sodium, Light-Plane Anesthesia.**—Animals injected with pentothal sodium to produce light-plane anesthesia were injected to effect. They were unconscious following administration, but retained reflex movements such as crying and struggling when hung at a 45-degree angle.

When the desired stage of anesthesia was produced, the syringe was removed from the needle and the curare was injected from another syringe. The syringe of pentothal sodium was then refitted to the needle. Because pentothal sodium is rapidly eliminated from the body, it was occasionally necessary to inject small additional quantities of pentothal sodium to maintain the desired plane of anesthesia.

The  $\frac{1}{4}$ -unit dosage of curare produced a good degree of relaxation in most dogs. The  $\frac{3}{8}$ -unit dose produced a good degree of relaxation in all dogs tested. The time of relaxation varied from nine to twenty minutes.

The  $\frac{1}{2}$ -unit injection of curare produced a respiratory paralysis in 2 dogs.

The experiments with light-plane pentothal anesthesia gave somewhat similar reactions to those of curare with nembutal. In general, curare seemed to have a shorter degree of action.

**Pentothal Sodium, Surgical Anesthesia.**—Pentothal sodium, surgical anesthesia, was given to effect. Surgical anesthesia was taken to be that stage of anesthesia in which there was a slight palpebral reflex but no pedal reflex. Repeated injections of pentothal were occasionally necessary to hold the animal under surgical anesthesia until the effects of curare were eliminated.

The symptoms of  $\frac{1}{4}$ ,  $\frac{3}{8}$ , and  $\frac{1}{2}$  unit were similar to those under light-plane anesthesia. Even the degree of relaxation and time of action were similar to those under light-plane anesthesia. Because of the maximum efficiency and lack of undesirable symptoms,  $\frac{3}{8}$  unit of curare would seem to be the best therapeutic dose with light-plane and surgical pentothal sodium anesthesia as well as light-plane and surgical nembutal anesthesia.

**Ether Anesthesia with Curare.**—Ether in light-plane anesthesia and surgical anesthesia, followed by either  $\frac{1}{2}$  or  $\frac{1}{4}$  unit of curare, produced marked effects on both respiration and pulse. Respiration rapidly became labored and shallow. In most dogs, respiration ceased almost immediately. The pulse became weak and thready. In all dogs, it was necessary to remove the ether mask immediately following the in-

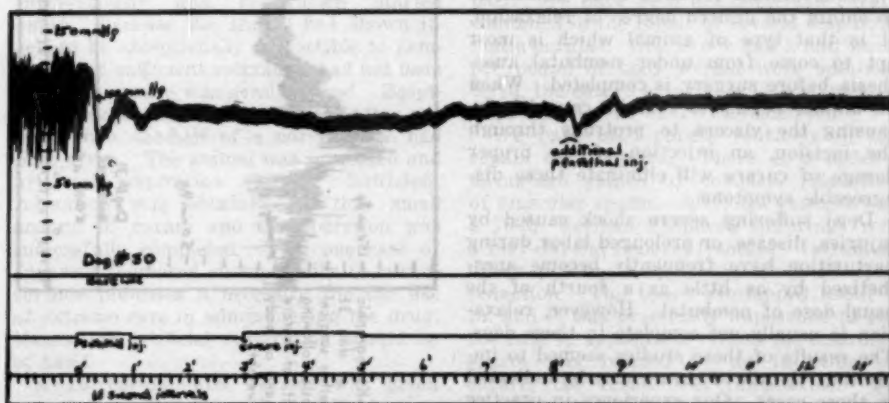


Fig. 2—Kymographic tracing of dog (No. 30) under pentothal surgical anesthesia following  $\frac{3}{8}$  unit of curare per pound of body weight.

jection of curare. Two died even though prostigmine was administered. Although prostigmine was beneficial in a large number of dogs, it is a notable fact that these dogs died following its use.

Until further studies are made, it would seem that curare is definitely contraindicated following the use of ether.

**Effect of Curare on Blood Pressure.**—In this study, no experiments were done on the effect of curare alone on blood pressure. Since  $\frac{3}{8}$  unit of curare was taken to be the nearest to an ideal therapeutic dose, that amount was used with surgical anesthesia produced by nembutal and pentothal sodium. One-eighth unit was used in determining the effects of ether and curare on blood pressure.

Nembutal (fig. 1) and pentothal sodium (fig. 2) produced short but rather marked effects on the blood pressure. Curare showed no change at all following pentothal sodium and only a very short dip in blood pressure occurred in 2 dogs following the use of nembutal.

Blood pressure in ether anesthesia (fig. 3) following curare showed marked fluctuations. However, the sharp dips in blood pressure were followed by a rise when artificial respiration was applied. This is a possible indication that the blood pressure could be maintained if the animal were intubated and administered constant artificial respiration while being given ether.

**Indications for Curare.**—The young and vigorous animal requires more anesthetic to obtain the desired degree of relaxation. It is that type of animal which is most apt to come from under nembutal anesthesia before surgery is completed. When an animal begins to breathe convulsively, causing the viscera to protrude through the incision, an injection of the proper dosage of curare will eliminate these disagreeable symptoms.

Dogs suffering severe shock caused by injuries, disease, or prolonged labor during parturition have frequently become anesthetized by as little as a fourth of the usual dose of nembutal. However, relaxation is usually not complete in these dogs. The results of these studies seemed to imply that  $\frac{3}{8}$  unit of curare may be indicated in those cases. Our experience in practice also seems to have substantiated that. Cullen<sup>6</sup> wrote that he used curare cau-



Fig. 3.—Kymographic tracing of dog 31 under ether surgical anesthesia following  $\frac{1}{8}$  unit of curare per pound of body weight.

tiously in the presence of shock but that it was probably advantageous, because it is possible to carry the patient in light anesthesia and prevent adding to the shock by increasing the depth of the anesthesia. The *Squibb Memoranda*<sup>11</sup> reported that patients considered a poor risk are able to take prolonged surgery which, without the supplemental use of curare, would be considered impractical and contraindicated.

A mixed Labrador Retriever was brought into the hospital two or three hours following an automobile injury. A piece of lung was protruding between the ribs blocking the opening in such a manner that the lungs did not collapse. Light-plane nembutal anesthesia was administered. In order to achieve complete paralysis of the respiratory muscles, the nembutal was followed by approximately 1 unit of curare per pound of body weight. The animal was, of course, intubated for artificial respiration. Since it was necessary to keep the dog under anesthesia for two and one-half hours, it was necessary to give repeated doses of curare in small amounts.

In our practice, we have used curare on patients varying in age from 3 months to 17 years. With one exception, curare produced no undesirable effects. A very fat 9-year-old poodle-type bitch, weighing 60 lb., suffering from a huge umbilical hernia, was anesthetized with nembutal. Following 7 cc. of nembutal, respiration ceased. Two cc. of metrazol was injected intravenously and respiration started again. Because the animal had shown itself to be exceptionally susceptible to nembutal and sufficient relaxation had not been achieved, curare was administered. Respiration again ceased immediately after not more than one-half of a normal dose had been given. The animal was intubated and artificial respiration started. Sufficient relaxation was obtained by that small amount of curare and the operation was successfully completed. This one case of apparent increased susceptibility to curare further indicates a necessity for the use of extreme care in administering the drug. Means for artificial respiration should be at hand.

A 16-year-old Fox Terrier was given enough nembutal to produce a light anesthesia. During the injection of curare, she died. Not more than one-third of a

therapeutic dose of curare had been injected. Nembutal, rather than curare, was believed to be the fatal agent. She was suffering from metastatic abdominal tumors and had a marked valvular insufficiency.

Nembutal anesthesia is ordinarily considered contraindicated for cesarean surgery in animals. Pentothal sodium is frequently used, particularly in English Bulldogs. There is sometimes a slight degree of narcosis in the puppies, which may be eliminated by injecting the puppies intraperitoneally with  $\frac{1}{4}$  to  $\frac{1}{2}$  cc. of metrazol. We have found that the rapidly eliminated pentothal sodium used in light-plane anesthesia combined with curare is an excellent anesthetic for cesarean operations, especially for a bitch who has lost her vitality and strength from overlong parturient labor. A bitch, 3 years old and weighing 35 lb., was brought into the hospital following almost three days of labor. A light-plane anesthesia was induced with pentothal sodium, followed by  $\frac{3}{4}$  unit of curare per pound of body weight. The uterus was found to be in a putrefactive condition which necessitated a hysterectomy. An uneventful recovery followed.

Diaphragmatic hernia is an operation which particularly lends itself to the use of nembutal and curare. Since an animal must be intubated and given artificial respiration, enough curare may be given to completely relax the respiratory muscles, a paralyzed diaphragm being easier to repair. We have used nembutal and curare combined in the repair of several diaphragmatic hernias. One to one and a half units per pound of body weight were administered, the curare being very slowly injected until the desired effect was achieved.

We have used curare routinely in the repair of fractures. There is a definite advantage gained by complete relaxation of muscular spasm. A typical example was a 70-lb. German Shepherd suffering from a four-day-old femoral fracture. Intramedullary pinning was accomplished by open reduction. The bones overlapped about 3 in. and it was practically impossible to get the ends in apposition. When the muscular spasm was relaxed by an injection of curare, the result was remarkable. By simply pulling firmly on the leg with one hand and maneuvering the broken ends of the bones with the fingers of the other

hand, the bones were quickly placed in apposition. Curare has also been advantageous in the reduction of coxofemoral luxation.

A 10-year-old English Bulldog, weighing 80 lb., suffering from a pyometra was presented for hysterectomy. She was obviously a poor anesthetic risk. Three cubic centimeters of demerol were administered followed by 10 cc. of nembutal intravenously. She was intubated and administered oxygen. Ten cubic centimeters of nembutal kept her under satisfactory anesthesia until closure of the peritoneum was started, at which time she commenced to breathe heavily, causing huge folds of omental fat to protrude through the incision. Curare was administered and the peritoneum was closed satisfactorily.

Another good example of the usefulness of curare was a 55-lb. Chow dog, 12 years old, suffering from a severe pyometra—an extremely poor surgical risk. She was emaciated and had a cardiac irregularity and insufficiency. Seven cubic centimeters of nembutal were carefully administered, intravenously, in fractionated doses, producing complete anesthesia. The dog was prepared for surgery and placed on the table, when suddenly respiration ceased and the heart stopped beating. Amfetazol, 1/5 cc., was injected into the heart and she was intubated and oxygen was administered with a respirator. Her heart started again but she began to struggle. After curare was administered, the operation was completed satisfactorily and the patient had an uneventful recovery.

Anal surgery seems to be particularly facilitated by curare. Complete relaxation of the anus is achieved by even light doses of this drug. We operated on 1 dog in which the entire anus and part of the rectum were involved by tumors. It was necessary to remove the anus and more than an inch of rectum. The stump of the rectum was pulled out and sutured to the surrounding tissues and skin. Curare was a definite aid. The removal of the sphincter muscle seemed to cause no inconvenience to the dog.

We have used curare in at least 250 cases of surgery. For convenience sake, we keep what we call a stock solution of curare. This is a physiological salt solution containing 2 units of curare per cubic centimeter. A full two minutes is taken for injection.

Too rapid an injection of curare may produce either a bradycardia or a tachycardia, or even cardiac collapse.

#### CONCLUSIONS

- 1) The use of curare as an adjunct to nembutal and pentothal sodium permits the use of less of the anesthetic agent to produce satisfactory muscular relaxation.
- 2) Three-eighths unit of curare per pound of body weight seems to be the most satisfactory dosage; however, curare, like nembutal, should be given to effect.
- 3) A full two minutes should be taken for injection of curare.
- 4) If artificial respiration is maintained, the dose of curare may be cautiously increased.
- 5) Atropine and ether, until further study, should be considered contraindicated when curare is used.
- 6) Prostigmine methylsulfate, 1:2,000 in 2-cc. doses, seems to be a reasonably good antidote, but a second and third dose may be necessary.
- 7) Changes in blood pressure during the use of curare are insignificant.
- 8) The concentration of curare now commercially supplied (20 units per cc.) is too concentrated for satisfactory dosage and should be diluted to 2 units per cubic centimeter.
- 9) Curare has no analgesic effect.

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## Parturient Malignant Edema in a Cow

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On March 24, 1951, a 3-year-old Hereford cow was presented to the Colorado A. & M. College veterinary clinic for treatment of retained fetal membranes. Parturition had been normal two days earlier with the delivery of a live calf, and the animal had remained well until approximately eight hours prior to entrance into the hospital.

The appearance of the patient first suggested a case of septic metritis which is common in this breed during the early spring months. There was no lameness and no indication of external swellings in any part of the body. Examination revealed the fetal membranes had been partially expelled with the remainder being firmly attached. The uterus contained a large amount of thin, watery, foul-smelling fluid. The temperature was only 102.2 F., but systemically there was much depression and evidence of toxicity.

Entrance treatment consisted of the intravenous injection of 30 Gm. each of the sodium salts of sulfathiazole and sulfapyridine, and 1,000 cc. of 5 per cent saline and dextrose. This was followed with the oral administration of 960 gr. of sulfathiazole. The uterus was drained and three 240-gr. sulfaurea tablets and 480 gr. of sulfanilamide were inserted.

The next day, there was little change in the condition. Because of the patient's belligerent attitude, 960 gr. of sulfathiazole were given in one dose with no further treatment. On the following day, the cow was down, very depressed and weakened, the temperature remaining at 102 F. The carpal regions of both forelegs appeared edematous and the left leg also showed some

swelling in the radial region. One million units of crystalline penicillin in 2,000 cc. of 5 per cent saline and glucose was given intravenously. Three million units of procaine penicillin in oil were injected intramuscularly. The left foreleg continued to enlarge and by evening the swelling had extended to the withers. The cow was in a great deal of pain and unable to rise. Her calf had been placed on a nurse cow and was doing well.

The next morning, March 27, the patient was on her feet but unable to bear weight on the affected limb. The temperature was 101.2 F. Closer examination of the tissues involved still revealed no skin breaks or lesions. Tissue fluid from the left foreleg was aspirated into a sterile vial and sent to the laboratory for culture. The penicillin and dextrose therapy of the previous day was repeated. The fetal membranes still could not be removed, so 2 cc. of large animal lentin was given hypodermically to expel fluids from the uterus.

The animal spent most of the following day in recumbancy and would eat some grain. The temperature remained normal. On the fifth day after entrance, there was a decided improvement in appearance and



Fig. 1—The cow eight days after admission to the hospital. The extensive involvement of the left foreleg can be seen. The arrow points to the site where fluid was aspirated.

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attitude, and the membranes were expelled from the uterus. One gallon of ruminal fluids in 4 gal. of water was pumped into the rumen to enhance the appetite. Improvement continued the next few days



Fig. 2—The arrow points to the enlarged axillary space which later sloughed.

and on the tenth day after admission, the cow and calf were sent home. The left foreleg still showed evidence of considerable swelling but there was no lameness.

The laboratory report of the aspirated fluid showed the presence of *Clostridium septicum* and *Staphylococcus* in the affected tissue. The malignant edema bacillus was determined by culture mediums and guinea pig inoculation.

Approximately four weeks later, the owner was contacted. He reported the cow had been eating well but the tissues of the axillary space was sloughing, and there was loss of condition. He stated he could see vessels exposed in the area of necrosis. As his ranch was some distance from the hospital, he was instructed to bring the cow in again. Several days later, he reported that she had died in the attempt to load her into his truck. Weakened by her condition, she had fallen and torn the brachial vessels which resulted in profuse hemorrhage and death. No autopsy was held.

From the facts considered, the above described case was one in which the uterus served as the etiological source of the ma-

lignant edema bacillus. It was the second such animal to appear in this clinic within the past year, although the first was not confirmed by laboratory diagnosis.

### Reconstruction of the Common Bile Duct with a Free Ureteral Graft

Repairing or reconstructing the common bile duct in cases of injury or stricture taxes the ingenuity of all concerned. The ideal repair of a missing section of common bile duct is mobilization of the divided ends with primary anastomosis over a T-tube, because the flow of bile is thus re-established through its normal channel.

It seems reasonable that if a tissue or organ is to replace a section of common bile duct successfully, the organ or tissue grafted must be transplanted with its blood supply intact or, if grafted free, must easily develop a new blood supply from the recipient site; also, the organ substituting for the bile duct must be epithelized with an epithelium that will tolerate bile so that stricture does not occur. It was thought that perhaps the ureter would fulfill these requirements. The common bile duct is lined with simple columnar epithelium and the ureter with stratified squamous epithelium. In both cases, the epithelium is subjected normally to changes of hydrogen ion concentration and to precipitation and crystal formation relative to bile and urine. Furthermore, it was thought that perhaps a section of ureter could be brought into position as a graft with its blood supply intact. Even though a kidney had to be sacrificed, if ureter could be used successfully to bridge a gap of common bile duct, the price of nephrectomy would not be too high. With these thoughts in mind, the following experiment was attempted (*Surg., Gynec. and Obst., May, 1951*).

An attempt was made in the dog to bridge a gap in the common bile duct with a free ureteral graft. This procedure was accomplished satisfactorily in 3 dogs. The dogs lived three months, seven months, and fourteen months, respectively, after operation without clinical evidence of biliary obstruction. Postmortem examination revealed the grafts to be patent. The entire biliary tree proximal to the grafts was markedly dilated, however, indicative of biliary obstruction. The epithelial lining of the free ureteral grafts was destroyed and replaced by fibrous tissue.

### Postemetic Rupture of the Esophagus

Postemetic rupture of the esophagus is not spontaneous but is traumatic in origin. Although rare, it is not a pathological curiosity. The signs and symptoms are practically pathognomic and a suspected diagnosis can be confirmed with ease if the lesion is kept in mind.

It is uniformly fatal if undiagnosed and untreated. The essentials of treatment consist of rapid resuscitation, and thoracotomy with definitive repair of the esophageal rupture. So-called "conservative" drainage procedures have no place in the early hours following rupture.

If, by rare chance, the patient survives the initial contamination for twenty-four to forty-eight hours, invasive infection may be presumed present and temporizing drainage procedures may then be indicated.

Two cases of rupture of the esophagus are added to the literature. In each, the diagnosis was made early, resuscitation was intensive, and prompt recovery followed thoracotomy and direct repair of the esophageal tear.—*Surg., Gynec. and Obst.*, Aug., 1951: 221.

### Casting Accident in a Young Horse

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A 2-year-old Thoroughbred filly was admitted to the veterinary clinic of Colorado A. & M. College with a history of having been thrown the preceding day to facilitate shoeing. The owner declared that the filly fought constantly while down. To insure further adequate restraint of the individual, her hind legs were tied to her halter. Following shoeing, the ropes were removed but the mare remained recumbent from paralysis of the hind limbs. The animal became apprehensive and thrashed continually so that it was necessary to retie the mare with her four feet together, but she continued to fight the restraint.

On arrival at the clinic, the recumbent mare had severe bruising of the limbs and the head. She was observed to flag her tail but no motor innervation to the hind legs could be elicited by external stimuli. Rectal examination was negative except for

an enlarged bladder which upon catheterization yielded coffee-colored urine. The diagnosis was probable compression fracture of a spinal vertebra with secondary azoturia.

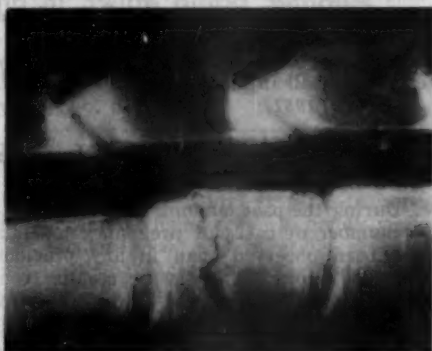


Fig. 1.—Fracture line and slight displacement of fragments, as well as compaction of bone substance.

Forty-eight hours after admission, the filly died and autopsy revealed a sanguino-purulent cystitis, characteristic changes of azoturia in quadriceps and iliopsoas muscle groups. On section of the vertebral column, a fracture with slight bony displacement was visible in the third lumbar vertebrae (fig. 1), and a small hematoma within the vertebral foramen adjacent to the fracture line.

**Conclusions.**—There is no justification for casting nervous temperamental horses without partial sedation.

### Genital Infection in the Mare

A combination of sulfamethazine and penicillin has been found to be very useful in treating certain cases of streptococcal infection in mares (*Cornell Vet.*, July, 1951: 247).

Even with all the new drugs available, medicinal treatment of infected mares is not always successful, and in some cases rest from breeding appears to be the main factor in effecting a cure.

Sterility is not a separate, single disease. It is a result of many different diseases and conditions in cattle.

One can not assume that a cow which has aborted her calf necessarily has brucellosis.

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### Pentamethonium in Surgical Emergencies

Pentamethonium bromide is a new drug and, up to the present, full use has not been made of its clinical applications. It is known that it will produce, with comparative safety, a bloodless operating field by causing a fall in blood pressure.—*Brit. M. J.*, June 2, 1951.

### High Incidence of Pregnancy Toxemia of Sheep

During the past lambing season, a great number of cases of pregnancy toxemia has been observed than in any previous year on record. The disease results from a metabolic disturbance, ewes carrying twins or triplets being peculiarly susceptible. It has been suggested that the disease is more prevalent during severe winters when the animals require more hand-feeding, but careful examination of the meteorological data for the past twenty-five years shows that there have been winters equally severe as the one just passed without there being a high incidence of pregnancy toxemia, so that the relationship of the disease to climatic conditions still remains to be proved.

Treatment up to the present has been unsatisfactory. Until a great deal more is known concerning the etiology of the disease, treatment can not be expected to be completely effective.—*Irish Vet. J.*, May, 1951.

### Estrogenic Effects of Subterranean Clover

Numerous cases of udder development and milk secretion in virgin and unbred ewes, particularly during the spring and early summer, were found on properties possessing dominant subterranean clover (*Trifolium subterraneum* L. var. *dwalganup*) pastures. The microscopic picture was that of a normal, functioning mammary gland with full alveolar development, while analysis showed the secretion to be similar to colostrum. Lactation in wethers was continually reported, in one instance about 8 per cent of the total number of wethers showing lactation.

In an investigation into the reaction of the nipple in the castrated male guinea pig to a diet of estrogenically potent subter-

anean clover, estrogen treatment, either in the form of clover ingested or stilbestrol injected, caused a similar and statistically significant increase in nipple length over that found in the castrated animal. The effect of the clover diet was obvious at fourteen days, the greatest increase occurring at one month.

There was no change in nipple length which could be attributed to castration, nor did administration of testosterone propionate have any effect on the nipple of the castrated animal.

When this androgen was given conjointly with a clover diet, however, the resultant teats were considerably smaller than those of the guinea pigs receiving clover alone. The protective action of the testosterone was here manifest although insufficient to give complete neutralization.—*Austral. J. Exptl. Biol. and M. Sci.*, 28, 1950: 449-458.

### A Prosthesis for Reconstruction of the Hip Joint

For a long time, the orthopedic surgeon has been searching for a method of treatment that would ensure uniformly satisfactory results in the many refractory lesions encountered at the hip joint in both young and old adults. This entirely new and notable technique, replete with manifest possibilities, may well prove to be the effective solution of treatment for the many painful and crippling lesions of the hip joint, in which the classical procedures in use still fail to give results which are completely satisfactory.

The object of this paper is to focus further attention upon the replacement method and to encourage unreserved consideration of the procedure.

The operation has proved itself in the large field of osteoarthritic hips, in which it has been most extensively practiced. In un-united fractures of the neck of the femur, the results have been extremely satisfactory. In many other chronic lesions of the adult hip of varying pathology, as well as in fresh fractures of the neck of the femur, the results have been most gratifying.—*Surg., Gynec. and Obst.*, May, 1951.

Aureomycin appears to be an effective therapeutic agent in *Trichomonas vaginalis* vaginitis.—*Surg., Gynec. and Obst.*, Aug., 1951: 177.

# CLINICAL DATA

## The Procurement and Handling of Swine Blood Samples on the Farm

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BLOOD SAMPLES suitable for laboratory examination are of primary importance in any swine brucellosis control program. Problems became increasingly evident as our swine brucellosis investigations were extended to include field control experiments in farm herds located throughout the state. While methods for bleeding swine were rather well known, certain details, especially as the procedure is applied under ordinary farm conditions, had to be developed. Swine blood itself is so subject to hemolysis that improved methods of handling and shipping had to be developed so that the laboratory would receive samples in suitable condition for testing. The following discussion is intended to be a helpful guide to practitioners, and represents the experience gained from a large number of tests made on more than 100 farms during the past three years.

### BLEEDING FROM THE ANTERIOR VENA CAVA

The anterior vena cava method of swine bleeding, described by Carle and Dewhirst,<sup>1</sup> is highly recommended when slightly modified as a simple routine technique yielding blood samples of the highest quality while requiring a minimum amount of equipment and help. Restraint of the animal is of primary importance regardless of the method of bleeding used. The most satisfactory method of restraint for anterior vena cava bleeding is simply snubbing the animal to a post by means of a  $\frac{1}{4}$  in. rope noose pulled tight around the upper jaw behind the tusks. Rope larger than  $\frac{1}{4}$  in. tends to slip. We have used a 4-ft. piece of

$\frac{1}{4}$ -in. rope fastened to 4 ft. of  $\frac{1}{2}$ -in. rope, the larger rope being easier to handle while the smaller noose end is easily replaced when chewed through. After the hog is caught, it is pulled up to about 2 ft. from a solid post and the rope is fastened about 3 ft. from the ground, so that the hog is bled in a standing position with neck extended.

Stanchions, while good restraint for ear bleeding, are unhandy for anterior vena cava bleeding. Iowa hog holders, pipe and wire loop hog holders, or the iron hog holders are less satisfactory, in our experience, for hog bleeding.

A brief review of the anatomy involved may prove helpful (fig. 1 and 2). The region from which the blood is taken, whether actually from the anterior vena cava or from the other vessels in the area, lies anterior to the first pair of ribs, ventral to the trachea, and dorsal to the cariniform cartilage of the sternum.

The anterior vena cava is formed by the confluence of the right and left deep and superficial jugular veins with the brachial veins at the thoracic inlet. Deep to the external jugular veins and lying near the ventral lateral surface of the trachea are the common carotid arteries which arise from the brachiocephalic artery at the thoracic inlet. The latter vessel is continued around the first rib as the right brachial artery. The left brachial artery arises separately from the aortic arch at a variable distance above the origin of the brachiocephalic artery. Both the right and left brachial (axillary) vessels curve forward and pass around the anterior border of the first rib.

Many of the ventral branches of the cervical and thoracic nerves which unite to form the brachial plexus can also be found in the region of the thoracic inlet. The

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The authors are indebted to Mr. John G. Bowne who prepared and photographed the special anatomic dissections used, and to Mr. W. R. Bauriedel who supplied the other photographs.

<sup>1</sup>Carle, B. N., and Dewhirst, Wm. H. Jr.: A Method for bleeding Swine. J.A.V.M.A., 101, (1942):493-496.



phrenic nerve is of special interest. On the left side (fig. 1, No. 11), it courses for a short distance parallel to, and in close proximity with, the external jugular vein, thus making it in actual field experience quite vulnerable to injury by the bleeding needle. Although the origin of the phrenic nerve on the right is the same as that of the left, it is partially protected for some distance by the scalenus ventralis muscle. As the right phrenic nerve (fig. 2, No. 16) enters the thoracic inlet, the right brachial vessels lie superficial to the nerve, thus affording more protection to the nerve than is the case on the left side. This may in part be explained by the fact that the brachiocephalic artery and the left brachial artery arise at different levels from the aortic arch. The left side also presents the thoracic lymph duct which terminates in a variable manner by emptying either into the anterior vena cava, the left jugular-brachial junction or more frequently into

the left jugular vein. Consequently, it may also be penetrated when bleeding from the left side; thus, samples of pure lymph may be unintentionally obtained.

Externally, a depression can be noted in the distal one-third of the cervical region which serves as a useful landmark. When the head and neck are extended and held upward, a furrow similar in appearance to the jugular furrow may be noted. The muscular boundaries, however, are different. The depression can usually be found by running the hand down the furrow to the anterior margin of the anterior superficial muscle. This point is slightly anterior and lateral to the cariniform cartilage and lies on an imaginary line that connects the cariniform cartilage with the base of the ear. This depression can be found more readily if the forelimb is pulled back, thus making more evident the anterior border of the pectoral musculature. With the animal in a standing position, the needle is

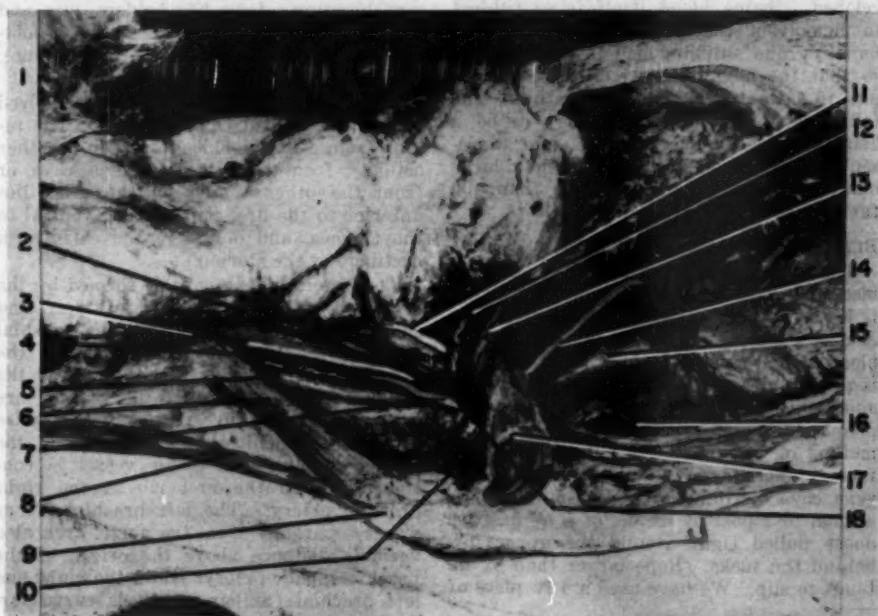


Fig. 1—Left ventral-lateral view.

1—Left ear; 2—left external jugular vein; 3—vago-sympathetic trunk; 4—left internal jugular vein; 5—left common carotid artery; 6—sternocephalic muscle; 7—tracheal lymph duct; 8—sterno-thyro-hyoideus muscle; 9—cariniform cartilage; 10—right external jugular vein; 11—left phrenic nerve; 12—left brachial vein; 13—left brachial artery; 14—left phrenic nerve; 15—brachiocephalic artery; 16—cut edge of pericardial sac; 17—first rib; 18—anterior vena cava.



directed upward, slightly backward, and medially until the anterior vena cava is penetrated (fig. 3). Since the pericardial sac of the hog often extends as far forward as the first intercostal space and the pleural cavity extends slightly beyond the anterior limits of the first pair of ribs, it is advisable and desirable that the needle remain anterior to the first pair of ribs.

The anterior vena cava method may be used to bleed swine of any age. Baby pigs, from birth to about 50 lb., are commonly placed in a dorsal recumbent position (in a hog trough) and bled with a 1½-in., 20G needle. Hogs too large to bleed in a trough are bled standing. Three and one-half to 4½-in., 17G to 19G needles have been used with success. A 4-in., 18G needle will bleed all but the very largest sows, for which a 4½-in. needle will be needed. With a little practice, hogs can be bled as fast as they can be caught.

Usually, two or more needles and a 10-

ml. glass syringe are used. The syringe and needle should be washed at least three times with 0.9 per cent sodium chloride solution after each animal is bled. The first needle is then placed in 70 per cent alcohol while the next animal is bled with the alternate needle. Removal of the needle from the syringe before discharging the blood into the tube will lessen hemolysis by mechanical means.

As with any surgical procedure, the veterinarian should be aware of the pitfalls and possible dangers to the animal. He may well wish to advise the farmer as to the possibilities before he bleeds the animals. It was noted early in routine bleeding, that occasionally an animal showed severe dyspnea immediately after release. The marked abdominal type breathing and distress were temporary in all cases with complete recovery by the next day. Since this difficulty was not experienced by one of the authors in his bleeding, it was pos-

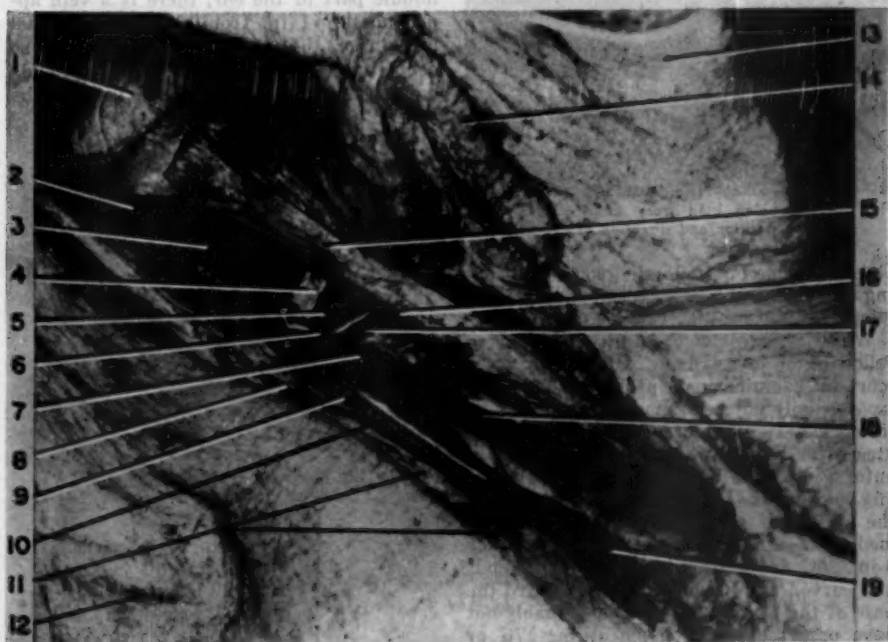


Fig. 2—Right ventral-lateral view.

- 1—Heart; 2—pericardium; 3—pleura; 4—first rib; 5—right brachial artery; 6—right external thoracic vein; 7—anterior vena cava; 8—cariniform cartilage; 9—right common carotid artery; 10—vago-sympathetic trunk; 11—median line; 12—left shoulder; 13—right shoulder; 14—anterior superficial pectoral muscle; 15—sternoccephalicus muscle; 16—right phrenic nerve; 17—right brachial vein; 18—right external jugular vein; 19—right internal jugular vein.

sible by comparison of techniques to determine that the dyspnea had occurred only when animals were bled from the left side. These observations warranted the careful dissection of a number of pigs which revealed the apparent difference in the course of the left phrenic nerve which would make it more vulnerable to injury by the needle. It appears that this clinical experience may



Fig. 3—Hog being bled from anterior vena cava, showing position and direction of needle.

be explainable on anatomic grounds. Bleeding on the left side also occasionally yielded lymph.

While an occasional fatality is reported following anterior vena cava bleeding, post-mortem examinations proving the cause have usually not been made. A 250-lb. gilt in our experience, however, died a few minutes after bleeding and it was found upon autopsy that the aorta had been punctured (fig. 4) and the resulting hemorrhage into the pericardium had caused the almost immediate death. It seems logical that the 4-in., 20G needle used was so limber that it had curved and became directed toward the base of the heart. This would probably not have occurred if the much stiffer 17G or 18G needle had been used. Since that time, we have also been more careful to keep the needle point anterior to the first pair of ribs.

The numerous advantages of anterior vena cava bleeding are worth enumeration. This method can be used on animals of any size. It can be done with the least amount of equipment and help. Adequate clean samples of blood that have a minimum tendency to hemolyze are regularly obtained. The hundreds of sterile hemocultures taken in the field by this means are evidence of the quality of blood samples procured. The farmer appreciates the fact that animals rarely bleed from the skin wound following this method. This is the only satisfactory method of bleeding some of the small-eared breeds of swine.

#### EAR BLEEDING

Ear bleeding, as commonly practiced, is accomplished by piercing or severing one of the ear veins and/or the accompanying artery. The Bard-Parker No. 11 blade is commonly used. In addition to the veins easily seen near the outer edge and in the middle part of the ear, there is a vein approximately 1 in. from the top or medial margin of the ear and, while usually so deep that it is not visible, it does provide an additional source of blood in case the



Fig. 4—Heart with needle in the actual cut in the aorta, which resulted in fatal hemorrhage into the pericardial sac.

other veins fail to produce an adequate amount.

Ear bleeding involves almost no hazard to the animal. However, the persistent bleeding from these ears is objected to by the farmer. The blood samples often are not adequate in amount for testing and, since the blood is grossly contaminated in flowing across the ear, there is a very definite tendency for spontaneous hemolysis. In bleeding animals which have a *Brucella* bacteremia, the danger of contaminating hands, clothes, etc., should not be ignored.

#### THE PREVENTION OF HEMOLYSIS OF BLOOD SAMPLES

The biggest problem with swine blood, as far as the laboratory is concerned, is hemolysis. It is especially important that the amount of hemolysis be minimal since in the agglutination test the 1:25 dilution is commonly set up for swine testing. Samples of blood taken for laboratory examina-

tion must usually be sent to the laboratory by parcel post. Extremes of temperature, both hot and cold, as well as agitation by rough handling are well known to affect the hemolysis of blood samples. Swine blood is so much more fragile than cattle blood that it is almost impossible to send whole blood samples through the mail. Often, samples are partially hemolyzed before they can be shipped, especially if the swine were ear bled. One hemolyzed sample, in a group of swine or cattle, causes considerable expense and inconvenience to the veterinarian and the owner. If the test was made for the purpose of sale at a consignment sale, it may be difficult or impossible to have another test completed prior to the sale date. For these reasons, we believe that only separated serum samples should be furnished to the laboratory.

The separation of serum from blood samples need not be difficult or time consuming. The complete separation of serum



Fig. 5—Field swine bleeding kit, containing all materials needed and which may be hung on any nail in the barn or lot.

Two common cardboard blood sample boxes with empty bleeding tubes are resting on an ordinary chemical heat pad which, by warming samples, facilitates the contraction of the clot.

The glass jar at the right is used to collect the bloody washings when rinsing the syringe and has a small amount of boric acid in the bottom to retard putrefaction until jar is emptied on return to office.

as the clot contracts is essential to the procurement of good serum samples. Contrary to common belief, the natural contraction of the clot is impeded by low temperature. Ideally, the contraction of the clot is stimu-



Fig. 6—Aspirating clear serum from a blood sample showing bent needle in proper position to exclude loose red blood cells and small clots from sample.

lated by maintaining the sample at about body temperature, but in practice a somewhat lower temperature accomplishes the same purpose. In cold weather, a suitable temperature has been approximated by placing the pasteboard box which holds the tubes on a common chemical heat pad obtainable at the drugstore (fig. 5). This has been satisfactory in maintaining the temperature sufficiently high to insure the contraction of the clots when the atmospheric temperature was about ten degrees below zero while the blood was being collected outdoors. The prewarmed tubes are filled with blood and returned immediately to the warmed box. On return to a warm room, the clots are loosened and the samples may then be kept cool till the loose blood cells settle. Separating the serum from the contracted clot by decanting, or by removal

of the clot with the stopper when the tubes were inverted, proved unsatisfactory, since the serum still contained enough erythrocytes and small clots to render the samples unsatisfactory when they reached the laboratory.

The method described here for the removal of serum from these blood samples has proved easy and consistently satisfactory. After the clot has contracted and the loose blood cells have settled, the clear serum is aspirated by means of a 5- or 10-ml. glass syringe fitted with an 18G, 4-in. needle. The aspiration of clear serum samples without small clots is facilitated by a 20-degree bend 3/16 in. from the point of the needle (fig. 6). The aspirated serum is placed in a clean vial and numbered with the same number as the original blood sample vial. Both vials are returned to the laboratory, the serum samples being packed toward the center of the package to minimize the danger of breakage. Following the aspiration of each serum sample, the syringe should be rinsed at least three times with clean sterile physiological saline solution or clean sterile water.

#### SUMMARY

The routine bleeding of swine under ordinary farm conditions is not a difficult procedure. The discussion of technique includes restraint, equipment, special anatomic considerations and relative merits of ear bleeding and bleeding from the anterior vena cava.

Simple efficient means of insuring suitable samples for laboratory examination are described.

#### Newcastle Disease Survey in Alberta

Until 1950, Alberta was considered to be free of Newcastle disease.

Since the actual virus was isolated from specimens during July to September 7, 1950, and only neutralizing antibodies found in specimens after that date, it would appear that the infection gained entrance to the province slightly prior to July, 1950. This would correspond to the period of greatest importation of eggs, chicks, and poults from outside Alberta. Migratory birds also received consideration as possible sources of introducing the disease.—*Canad. J. Comp. Med. and Vet. Sci.*, June, 1951.



## Treatment of Ascariasis in Horses in Central Kentucky

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A FREQUENT question directed to the Department of Animal Pathology at the University of Kentucky is concerned with the treatment of ascaris infection in horses. Methods of treatment of ascaris infection and the results of such treatment at Thoroughbred nurseries in this region have been studied by means of continuing surveys of the seasonal incidence and nature of parasitic infections initiated with the foaling season of 1948.<sup>1-4</sup> An accepted procedure for treatment of bots and ascaris was reviewed recently by Turk<sup>5</sup>; the proper timing of treatment was not reviewed, however.

The information obtained in the above surveys indicates that ascaris infection is largely a problem of young horses, i.e., sucklings, weanlings, and yearlings. These three groups of young horses, with the mares, constitute almost the entire horse population on a percentage basis in this area. No heavy ascaris infections have been found in mares; such infections are rare in the older animals due to an apparent age immunity. An occasional young stallion, young mares returned from tracks to enter studs, and members of racing strings returned to Kentucky to spend the winter may exhibit moderate ascaris infections.

The first source of ascaris infection for newborn foals is found in surviving ascaris eggs deposited on paddocks and pastures, and in stalls, by previous generations of infected young horses. The absence of ascaris infection in mares precludes coprophagia, a fairly common habit in young foals, from being considered as a source of infection, even if it were assumed that freshly passed manure contained ascaris eggs which had undergone such necessarily rapid embryonation to the infective stage. Foals which indulge in coprophagia prefer freshly passed, i.e., warm and moist, manure. The routine of management of the

horse population at a breeding farm contributes most largely to the survival of flourishing ascaris infection at a given farm.

At moderate-sized and large farms in this region, one barn and its accompanying

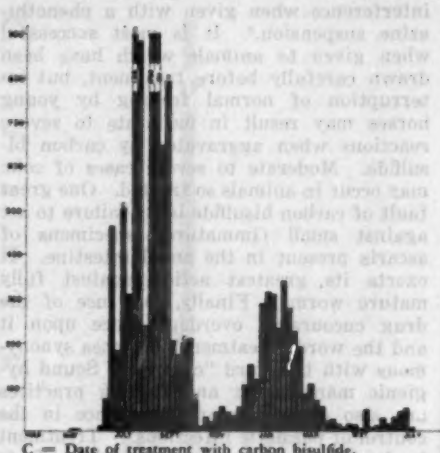


Fig. 1.—Weekly average ascaris egg counts in foals of 1948.

paddocks and/or pastures is designated by convenience or construction as a foaling barn. Mares and their foals rarely remain at this same barn until weaning but more generally are assigned to a second barn, in company with other mares and their foals. The second barn again may serve as permanent quarters until weaning, or may function as a receiving barn until a given number of mares and their foals accumulate; the horses then are removed to a third barn. After weaning, moreover, the weanlings customarily are assigned to barns and pastures vacated less than two months previously by the yearlings which have been consigned to summer or fall sales, or which have been taken up for breaking and light training. It should be evident, therefore, that any given foal at a farm follows closely in the footsteps of the age group of horses next most susceptible to ascaris infection.

The investigation reported in this paper is in connection with a project of the Kentucky Agricultural Experiment Station and is published by permission of the director.

Dr. Todd is from the Department of Animal Pathology, Kentucky Agricultural Experiment Station, Lexington, and Mr. Doherty is manager, Elmendorf Farm, Lexington.



For example, coughs and colds occurring in a short interval after weaning, and which are symptomatic of recent exposure to ascaris, generally precede the development of mature ascaris in the same weanlings sixty to seventy days later.

The drug of choice for treatment of ascaris infections in central Kentucky is carbon bisulfide, given by stomach tube or in a capsule. The drug possesses obvious shortcomings as an anthelmintic. Its volatile and irritant nature requires careful administration; its action receives serious interference when given with a phenothiazine suspension.<sup>3</sup> It is most successful when given to animals which have been drawn carefully before treatment, but interruption of normal feeding by young horses may result in moderate to severe reactions when aggravated by carbon bisulfide. Moderate to severe cases of colic may occur in animals so treated. One great fault of carbon bisulfide is its failure to act against small (immature) specimens of ascaris present in the small intestine. It exerts its greatest action against fully mature worms. Finally, long use of the drug encourages overdependence upon it and the word "treatment" becomes synonymous with the word "control." Sound hygienic management and feeding practices are also of particular importance in the control of parasitic infections. Treatment by itself is useful only in reducing effects of infection upon individual horses.

The data used for this paper illustrate actual employment of carbon bisulfide for treatment of ascaris in foals at one farm in central Kentucky. The data were accumulated over a three-year period and relate development of ascaris infections in three separate groups of foals. Methods of obtaining the egg counts have been described previously.<sup>2</sup>

#### TREATMENT OF ASCARIS INFECTION IN FOALS IN 1948

The progressive development of ascaris infections in the 1948 foals is shown in figure 1; egg counts were made at weekly intervals. Dates of treatment are indicated.

The average age of the 1948 foals when they first passed ascaris eggs was 10 weeks; their average age at first treatment was 14.3 weeks. First treatment consisted of 3 to 4 drams of carbon bisulfide given by stomach tube. The suckling foals were prepared for treatment in the following manner: On the night preceding treatment, the grain and

part of the hay were withheld from the mares; this device moderately inhibits milk production; the foals were not muzzled. The mares and foals were kept in the stall overnight to prevent grazing. The foals were then treated by use of stomach tube the following morning.

On July 14, 1948, the average ascaris count of the 9 foals in the survey was 505 eggs per gram of feces. Following treatment on July 17, the count on July 21 was 308 eggs per gram, and one week later had increased to 1,213 eggs per gram. Second treatment of the 9 foals with 3 to 4 drams of carbon bisulfide occurred on July 27. One day later, the average ascaris egg count was 1,213, and 15 days following second treatment (August 11), the count was reduced to 239 eggs per gram of feces.

The unsatisfactory results of the two treatments are clearly shown in figure 1. On August 18, the average count increased to 1,736 eggs per gram and continued at a high level until again interrupted by treatment on Sept. 9, 1948. Each of the first two treatments was followed closely by moderate decreases and then by increases in ascaris egg counts. The 3- to 4-dram doses of carbon bisulfide are an excellent reflection of the caution with which the drug is handled by veterinarians in equine practice in this area. The double treatment is a device to remove large numbers of worms without injury to the horse. The failure reported here is a certain indication that 3 drams of carbon bisulfide is not a particularly effective level. The decreases and increases of egg counts after such treatment probably indicate removal only of the most mature specimens of ascaris.

The average egg count in the 9 foals was 794 eggs per gram on September 8. Four drams of carbon bisulfide were given, in a capsule, to each of the survey animals on September 9. A week later, the average egg count was 204 eggs per gram. Similar treatment was given on September 23, and again on October 11. By October 20, the average count was 12 per gram. The weanlings were drawn preceding treatment by withholding the grain ration at night and were kept in stalls at night to prevent grazing. They were then drenched the following morning.

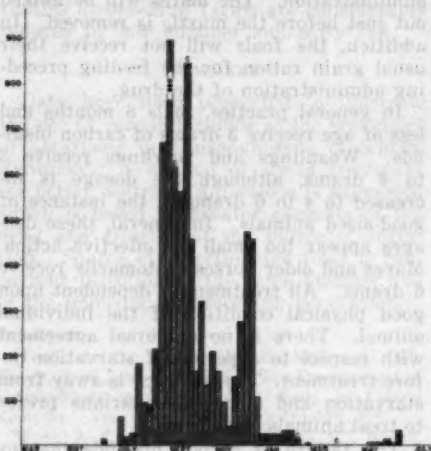
The 9 animals in the 1948 survey received no further treatment with carbon bisulfide after Oct. 11, 1948. The average egg counts obtained thereafter were not interrupted by treatment; figure 1 is continued until the animals were shipped to the yearling sales in the summer of 1949. The egg counts shown indicate that yearlings are not so susceptible to ascaris infections as sucklings and weanlings. The low counts obtained in April through July, 1949, can be considered a demonstration of the development of an age immunity to infection.

#### TREATMENT OF ASCARIS INFECTIONS IN FOALS IN 1949

The progressive development of ascaris infec-

tions in the 1949 foals is shown in figure 2; examinations again were made at weekly intervals. Dates of treatment are indicated.

The average age of these foals when ascaris eggs were first passed was 12.7 weeks; their average age at first treatment was 20.7 weeks. The first treat-



C = Date of treatment with carbon bisulfide.  
Fig. 2—Weekly average ascaris egg counts in foals of 1949.

ment on Sept. 9, 1949, preceded weaning by two weeks and the foals were handled in the manner described for sucklings in 1948. Second treatment was given on September 22, following weaning. Each treatment consisted of 5 to 6 drams of carbon bisulfide and the results of the two treatments are evident in figure 2. The drug was given by stomach tube.

Two days before the sucklings received the first treatment, the average ascaris count was 617 eggs per gram of feces; one week later, the count had dropped to 566 eggs per gram, but by September 21, the count had increased to 848 eggs per gram. After the second treatment on September 22, the average weekly counts progressively declined to a low of 43 eggs per gram on November 16. A rise and fall of average egg counts then occurred in early winter of 1949-1950 (fig. 2).

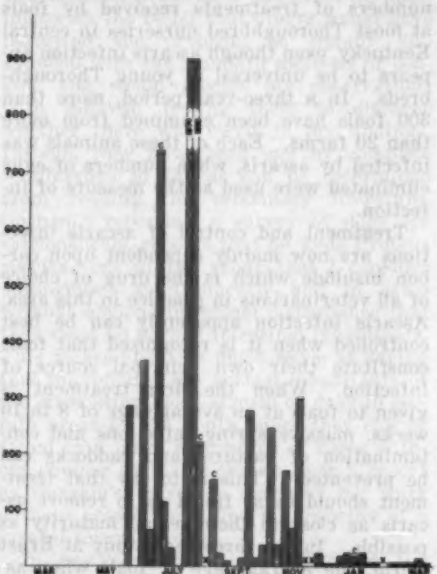
As yearlings in 1950, the 10 animals in the survey received two treatments with carbon bisulfide and the drug again was given with a stomach tube. The animals were drawn before treatment in a similar fashion to that described for the weanlings in 1948. Each animal received 6 drams of carbon bisulfide on Feb. 7, 1950, and again on March 27, 1950. On February 1, the average ascaris egg count was 30 eggs per gram of feces; on February 8, the count was 13 eggs per gram. Thereafter, from February 8 through May 5, only one average weekly count showed the yearlings passing ascaris eggs (fig. 2). Actually, the treatment given on

March 27 occurred when there was no evidence of ascaris infection (fig. 2).

#### TREATMENT OF ASCARIS INFECTIONS IN FOALS IN 1950

The progressive development of ascaris infections in the 1950 foals is shown in figure 3; examinations were made at weekly intervals. Dates of treatment are indicated.

The average age of the 1950 foals when ascaris eggs were first passed was 12.1 weeks; their average age at first treatment was 13.4 weeks. The



C = Date of treatment with carbon bisulfide; X = no samples counted.

Fig. 3—Weekly average ascaris egg counts in foals of 1950.

first treatment with carbon bisulfide was given on June 30, 1950, and preceded weaning by nine weeks. This first treatment consisted of 4 to 6 drams of carbon bisulfide administered with a stomach tube. The foals received a second and third treatment with carbon bisulfide on Aug. 10 and 24, 1950. These two treatments consisted of 5 to 6 drams given with a stomach tube.

The average ascaris egg count on June 28 was 774 eggs per gram of feces. Following treatment, the count declined to 114 eggs per gram on July 5; to 30 eggs per gram on July 12; and to zero on July 19. On July 26, however, the average egg count was 1,974 eggs per gram. The high average count on July 26 again demonstrates the ineffectiveness of carbon bisulfide against immature ascaris. The double treatment on August 10 and

24 appeared to have removed the ascaris more successfully (fig. 3).

The single treatment given the 10 yearlings in 1951 consisted of 6 drams of carbon bisulfide. A stomach tube was used for this treatment and the animals were handled in the manner previously described.

#### DISCUSSION

The number of treatments with carbon bisulfide received by the three crops of foals discussed here, in general far exceeds numbers of treatments received by foals at most Thoroughbred nurseries in central Kentucky, even though ascaris infection appears to be universal in young Thoroughbreds. In a three-year period, more than 300 foals have been examined from more than 20 farms. Each of these animals was infected by ascaris, when numbers of eggs eliminated were used as the measure of infection.

Treatment and control of ascaris infections are now mainly dependent upon carbon bisulfide which is the drug of choice of all veterinarians in practice in this area. Ascaris infection apparently can be best controlled when it is recognized that foals constitute their own principal source of infection. When the first treatment is given to foals at an average age of 8 to 10 weeks, massive spring infections and contamination of pastures and paddocks can be prevented.<sup>3</sup> This is to say that treatment should be so timed as to remove ascaris as close to their sexual maturity as possible. In the three-year study at Ernst Farm, the average age of foals when ascaris infections first matured was 10, 12.7, and 12.1 weeks.

The gradual improvement in control of ascaris infections in the Ernst Farm foals (fig. 1, 2, 3) doubtless is most largely derived from increased amounts of carbon bisulfide used in the individual treatments. In 1951, each foal at Elmendorf Farm will receive first treatment with carbon bisulfide at 8 weeks of age; the dosage will be 3 drams. The choice of this age for first treatment, *i.e.*, the timing of the first treatment, is based on the results obtained at one farm (F) in the 1948-1949 parasite survey.<sup>3</sup>

In the three preceding years at Ernst Farm (now Elmendorf Farm), the foals were drawn by milking out the mare, by removing the foal's feed trough, and by keeping both the mare and foal in the stall

so that they could not graze. In 1951, the mares will remain on full feed. The foals will be muzzled about an hour before the carbon bisulfide is administered, and the muzzle will be taken off about an hour after administration. The mares will be milked out just before the muzzle is removed. In addition, the foals will not receive their usual grain ration for the feeding preceding administration of the drug.

In general practice, foals 6 months and less of age receive 3 drams of carbon bisulfide. Weanlings and yearlings receive 3 to 4 drams, although the dosage is increased to 4 to 6 drams in the instance of good-sized animals. In general, these dosages appear too small for effective action. Mares and older horses customarily receive 6 drams. All treatment is dependent upon good physical condition of the individual animal. There is no universal agreement with respect to a period of starvation before treatment. The tendency is away from starvation and some veterinarians prefer to treat animals on full feed.

The failure of carbon bisulfide therapy to result in control of ascaris infection in central Kentucky is derived from a number of customs. Classically, foaling mares receive carbon bisulfide twice a year. One treatment is given in late fall or early winter, after the first frost, to remove bots. The second treatment generally is given in mid to late summer and appears to be a gesture toward worm control. The first treatment does remove bots then present in the stomach, but failure to give a second treatment later in the winter allows those bot larvae not yet in the stomach in early winter to reach and remain in that organ undisturbed. Carbon bisulfide has small action against strongyles, mares rarely are infected with ascaris, and the usefulness of such therapy in mid to late summer is questionable.

Classically, foals receive carbon bisulfide twice a year. The first treatment customarily is given at weaning and the second treatment a few months before yearling sales. Both of these treatments are absolutely unrelated to the seasonal development of ascaris infections in foals (fig. 1, 2, 3). At the majority of Thoroughbred farms, the decision for anthelmintic treatment is a function of management and time of treatment is selected for convenience in the farm routine. The complete absorption

in foaling and breeding in spring and preparation of yearlings for sales in summer and fall apparently has resulted in neglect of anthelmintic treatment for sucklings. Treatment of weanlings is undertaken more readily by management because activities at breeding farms are considerably reduced by late summer and early fall.

#### SUMMARY

Data have been presented to illustrate the use of carbon bisulfide in the treatment of ascariasis in Thoroughbreds in central Kentucky. A method of timed treatment for better control of infections is suggested which is based on greater amounts of the drug and directed at the source of infection. Source of infection for foals is concurrent infection in the same animals and in the immediately preceding generation.

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### Author Disappointed with Reaction to His Findings in Dysentery in Dogs

#### AN OPEN LETTER TO THE VETERINARY PROFESSION:

Some time ago I published a series of reports on dysentery in dogs,<sup>1,2,3,4,5</sup> incriminating a group of about ten bacteria, spirochetes, and protozoa. This work was started because the historical concept of the disease could not be reconciled with the clinical appearance, and the accepted methods of treatment were less than satisfactory. As the techniques were developed, a variety of symptoms were found associated with the presence of these organisms in the intestinal tract, and clinical improvement

could be effected by specific treatment aimed at eliminating those organisms from the feces. The chronicity and obscurity of the symptoms made this a difficult complex to understand, but the universality and the incidence of infection made it an important factor to be considered in both the treatment of dogs and in controlled experiments with dogs.

Having developed a satisfactory explanation for, and method of, handling a serious and common problem, I published my findings with the belief that others would have perceived the problem, be equally dissatisfied with the standard methods of control, and would receive my observations with interest, testing them to discover whether there was merit in my findings. Instead, they have been met by complete indifference so far as can be determined from reading the veterinary literature. Gorham,<sup>6</sup> reporting a survey of dogs for salmonellosis, reports that he finds *Proteus* species (one of the group that I consider pathogenic) so frequently and in cases without obvious intestinal disturbance that they must be normal intestinal inhabitants. This makes about as much sense as saying that microfilaria are normal inhabitants of the circulating blood stream of dogs in certain areas of the South, since they can be found in a large percentage of cases without obvious cardiac disease. Such a report as Gorham's serves to discredit my work without answering it and is unworthy of a careful scientist.

In every report, I have stressed the clinical nature of my findings and I have mentioned frequently that facilities are not available for controlled laboratory studies. Before opinions can be accepted as valid, a worker must either apply the methods I have used clinically or conduct a fully controlled experiment. Such studies are very much indicated and any institution pretending to investigate dog diseases should at least seriously consider this problem.

The diagnosis and specific treatment of intestinal infections has revolutionized my practice, giving me results that were impossible previously. Critical examination of the results during the past four years has convinced me that this is the most important single factor in successful treatment of dogs.

With a little effort, others could apply the same methods and obtain equal results. I



will be happy to make my experience available to anyone interested in studying the subject.—John E. Craige, V.M.D., P.O. Box 1187, Seaside, Calif.

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## A Technique of Endometrial Biopsy in the Bovine Animal

J. G. MILLER, D.V.M., M.S.  
Baton Rouge, Louisiana

The purpose of this paper is to report on a project to develop a technique of endometrial biopsy in the bovine animal. It was felt that such a technique, if practical, would be of value in obtaining information as to the status of the bovine endometrium

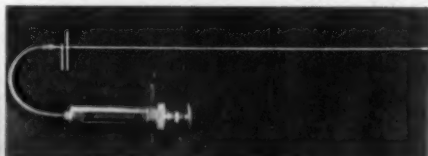


Fig. 1—Biopsy instrument assembled.

in the living animal. Such information would be especially useful in research studies on the physiology, and later on the pathology, of the reproductive tract. Extensive use and adaptation of the endometrial biopsy has been made in human

medicine, both for experimental and diagnostic use, but the author has been unable to find any reports in the literature on the use of the endometrial biopsy in veterinary research. However, a personal communication from Briss in Holland to Dr. Roberts cites a modified Hugs test tumor extractor as possibly a practical endometrial biopsy instrument.

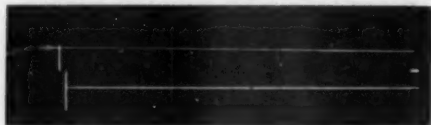


Fig. 2—Biopsy instrument disassembled.

**Equipment.**—The biopsy instrument, which was designed by Dr. Stephen Roberts of the New York State Veterinary College, consisted of two brass tubes, one fitting inside the other (fig. 1). The outer tube had a guard at its proximal end and a window in its wall near the distal end and was threaded to receive a cap (fig. 2). This cap was machined to conform with the tube and was made with a blunt end in order to avoid injuring the endometrium. The proximal end of the inner tube was fitted with an adapter for a syringe and the distal end was sharpened. When the second tube was inserted into the first, its length was sufficient to pass the window in the wall of the outer tube, but not sufficient to reach the cap.

#### Dimensions of the biopsy instrument

Over-all length of instrument	46 cm.
Diameter of outer tube	6 mm.
Diameter of inner tube	5 mm.
Window in outer tube	6 x 5 mm.

**Procedure.**—The method used to obtain a biopsy was identical to that of the introduction of an insemination pipette into the uterus by the cervical-fixation technique. The biopsies were usually attempted during estrus when the cervix was relaxed. In older multiparous cows and some heifers, a biopsy may be taken at any stage of the estrous cycle.

The instrument, with the second tube withdrawn proximal to the window, was introduced into the uterus.<sup>1</sup> A 40-cc. hypodermic syringe was attached by means of a

<sup>1</sup>The cap of the instrument could be felt as it emerged from the internal os of the cervix.

Taken from a thesis submitted to the graduate school of Cornell University in fulfillment of the requirements for the degree of Master of Science.

From the Department of Veterinary Science, Louisiana State University and A. and M. College, Baton Rouge. The author expresses appreciation to Dr. S. J. Roberts, Dr. K. McEntee, and Professor S. A. Asdell, of Cornell University for their assistance and guidance throughout the project.



6-in. rubber tube to the adapter of the second tube and suction was exerted to pull the endometrium through the window of

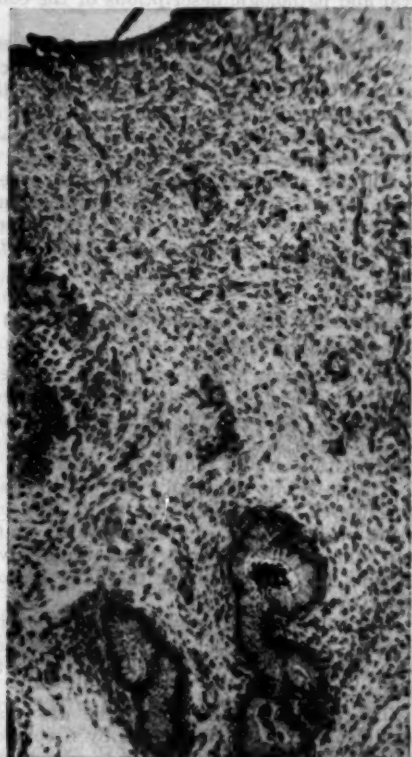


Fig. 3—Biopsy of a normal endometrium, showing detail available with a biopsy. The central dark areas in the lumina are portions of glandular epithelium sucked in by the biopsy technique.  $\times 155$ .

the first tube. This process was aided by pressure exerted on the uterus, per rectum, so that the endometrium was held against the window of the outer tube. The second tube was then inserted to its full length, and as it passed the window in the outer tube, the sharpened distal end removed the protruding endometrium depositing it in the cap. When the instrument was removed, the cap was unscrewed and the biopsy deposited in the fixative. The site of the biopsy was usually 2 to 3 in. from the cervix. No injuries or hemorrhages were encountered through the use of this instru-

ment during the course of the project in more than 40 operations.

**Fixation.**—Bouin's fixative was used for the biopsies. Satisfactory fixation was accomplished in eighteen hours; longer fixation made the tissue too hard for easy sectioning. Following the fixation the biopsies were washed for seventy-two hours in frequent changes of 70 per cent alcohol.

**Sectioning.**—All biopsy material was sectioned at a thickness of  $5\ \mu$ . The small size of the specimens posed a problem for the direction of sectioning; the biopsy should be sectioned perpendicularly to the surface of the endometrium.

**Histological Characteristics of the Endometrial Biopsies.**—The endometrial biopsy

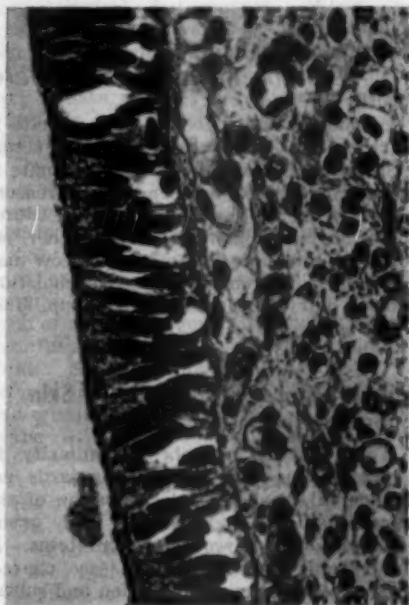


Fig. 4—A Section of the endometrium showing basal vacuolation of the epithelium.  $\times 736$ .

was approximately 1.4 mm. in depth and, therefore, only showed the tubular portions of the endometrial glands. The biopsies included both caruncular and intercaruncular areas of the endometrium. The endometrial epithelium was sometimes denuded in the biopsy or displaced by sectioning. The shape and the position of the nuclei in the epithelial cells and the endometrial

glands (see fig. 3) were well shown in some of the sections; however, there was an artifact present in the latter. This was an invagination of the glandular epithelium which resulted in a castlike mass of cells in the gland lumina (fig. 4). Varying degrees of interstitial edema were also observed in these sections.

**Conclusions.**—This procedure appears to have a definite place in experimental work. Through its use, biopsies of the superficial portions of the endometrium are now readily available. The structural relationships of the endometrium are retained in these sections.

The future of endometrial biopsies in the bovine animal will depend on the value of the biopsies in experimental work.

### Barn Ventilation

A well-ventilated barn is conducive to healthy livestock.

Although 2 cubic feet of air a minute is all that is required by a cow for actual respiration, 60 cubic feet of air a minute is normally required to keep a barn reasonably free from objectionable odors. Moreover, during relatively mild weather, as much as 150 cubic feet of air per cow may be needed to remove excessive moisture from a dairy barn.—*Canad. J. Comp. Med. and Vet. Sci., Aug., 1951:185.*

### Subcutaneous Granuloma or Skin Tuberculosis of Cattle

This disease presents a similarity to human leprosy, especially as regards experimental transmission, cultivation of the microorganism, and specific and group sensitization to mycobacterial proteins. It is a chronic granulomatous disease, characterized by cutaneous infiltration and subcutaneous nodules most often located on the lower leg. The condition has achieved a state of prominence in veterinary medicine because reactions to tuberculin occur in animals in the absence of gross evidence of systemic tuberculosis, but in the presence of skin lesions which resemble tuberculosis.

Only a few workers have succeeded in cultivating acid-fast organisms from these lesions—failure being the result in most experiments and by most workers. However, it is indicated that the subcutaneous

tubercloid lesion of cattle is a clinical entity and should be classed with the infectious granulomas. Such classification is justified by the general uniformity of clinical and pathologic descriptions of the condition.

There is a lack of correlation between occurrence of the disease and the prevalence of tuberculosis in the herds, but cattle with the tubercloid lesion tend to develop a positive reaction, often atypical, to avian or mammalian tuberculin or to both.

Further study of the condition is in order and should make additional contributions to our knowledge of mycobacterial infections.—*Leprosy Briefs, 1, Aug. and Sept., 1950; 32-37.*

### Resazurin Reduction in Freshly Drawn Mastitic-like Milk

If the resazurin test can be established as a valuable field test for the detection of mastitis, those working on the control of this disease will have a rapid means of examination of the individual quarters.

The object of this study was to establish the degree of correlation existing between resazurin reduction in freshly drawn quarter samples of milk and tests which have already been accepted for the detection of mastitis.

The correlation of resazurin reduction in freshly drawn quarter samples of mastitic-like milk with the confirmative test used is highly significant.

The resazurin test, using the dry vial modification when supervised by a competent veterinarian, can be used to advantage on the farm as a screening test for mastitis.—*J. Milk and Food Tech., 14, Jan.-Feb. 1951: 27-30.*

**Siliceous Renal Calculi in Cattle.**—The urinary calculi most often found in cattle are reported to consist of calcium or calcium and magnesium salts of carbonic or phosphoric acid. Among the other types of calculi found in cattle, silicate calculi occur in acid urines. Siliceous calculi apparently occur also in cattle in Eastern Europe, because the studies of silica in blood serum are stated to have been done in connection with studies on calculus formation.

In sheep, siliceous calculi have been reported more often than in cattle.—*Austral. Vet. J., 27, March, 1951: 68-69.*

## Dermatitis and Eczema of Small and Large Animals

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SKIN DISEASES result from many etiological factors. Some of these may act directly upon the skin itself, or indirectly via the blood, lymph, or nervous system sometimes resulting from various internal disorders. Therefore, the examination of the skin, coat, and subcutaneous tissue is of a great importance, not only for the diagnosis of the skin disease itself, but also as a source of valuable information leading to the more specific diagnosis of numerous internal disorders.

In a very real sense, the skin may be said to be a mirror of the general health of the animal, because it may reflect various changes associated with pathology of many other organs. Therefore, the investigation of the skin should not be limited to its functioning and its lesions, but the entire organism must be examined with regard to its immediate or eventual close connection with the disorder revealed in the integument.

In examining the etiology of skin diseases, the factors may be classified under two main headings. They are predisposing causes and exciting causes. The predisposing causes are associated with the age, sex, breed, heredity, season, nutrition, and the environment and use of animals. Some skin diseases develop only at a certain age or in only one of the sexes. Other disorders may occur at any time and with no limitation to sex. Some dermatoses occur only during the summer, like summer mange in horses; others are related closely to the use of animals, such as diseases of fungous origin in hunting dogs. Hereditary factors often have a predisposing influence in eczematous skin changes. Diet, endocrine imbalance, and especially allergic phenomena may play an essential part in the appearance of various cutaneous manifestations. Some animals, particularly carnivorous species such as dogs and cats, have been considered as especially susceptible to dermatoses because of diet. Recent research, however, reveals that a similar relationship exists between dietary deficiency or nutri-

tional intoxication to skin disorders in herbivorous animals, particularly in cattle.

Exciting causes may be external, internal, or both. They include trauma, extreme temperature changes, chemicals, irradiation, and various parasitic and pathogenic microorganisms.

From the foregoing, it is apparent that numerous factors may operate to produce skin disorders. They may act independently or in many combinations. This accounts for the great variety and complexity of dermatological disturbances. When one considers the many variables which must be taken into account, it is not surprising that diagnosis, prognosis, and treatment of various skin diseases are difficult and attention to every detail is indispensable for success.

The classification of skin diseases may be approached from several standpoints. This paper discusses one small part only, namely, skin inflammations and eczema.

*Skin Inflammations.*—Skin inflammations are similar to those of any other organ. They represent a reaction in the form of specific cutaneous changes to some harmful agent which is acting at a specific point. Skin inflammation is a type of defense or repair mechanism of the skin or as a secondary manifestation. With regard to the pathological anatomy, the skin must show some degenerative or even necrotic change which produces a healing reaction in the form of a dermatitis. This reaction is characterized by hyperemia, inflammatory exudation, inflammatory infiltration, and sometimes itching or pain. Cutaneous inflammation involves mainly the deeper skin layers. The three fundamental manifestations of dermatitis—hyperemia, exudation, and infiltration—are not present to the same degree in every case. Sometimes, hyperemia and exudation predominate, indicating that the inflammation is of a rapid, acute character. At other times, there may be excessive infiltration, indicative of a protracted, chronic dermatitis. The chronic and acute inflammations represent the extreme of types. There are of course many various combinations in quantity and quali-

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ty of inflammatory symptoms. In acute dermatitis, for example, different kinds of exudation may be observed: serous, serofibrinous, or even cellular accompanied with all the symptoms of purulent dermatitis.



Fig. 1.—Microgenic dermatitis.

Simple dermatitis differs from eczema in the character of the skin changes. Contrary to the belief of some authors, the differences are not merely ones of degree. In dermatitis, the pathological process is confined mainly to the cutis vera with epidermal changes of secondary origin. Eczema, on the other hand, is characterized by local skin lesions which are mostly limited to the superficial skin layers.

The causes of acute skin inflammation may be classified into several categories: artificial, microgenic, and neurogenic.

When the harmful agent is operating to a limited degree, the skin reacts only by an increase in the activity of its component tissues, producing merely a hyperemia. This slight cutaneous irritation may, therefore, be designated as a pre-inflammatory stage. A clinically recognizable inflammation develops when there is actual damage of the skin tissue.

The lowest degree of acute dermatitis is characterized by redness and thickening of the skin, and is called erythematous dermatitis. The intermediate degree is characterized by small vesicles and is termed vesicular dermatitis; or there develop large blisters, termed bullous dermatitis. The

highest degree of an acute skin inflammation is characterized by superficial or deeper necrosis of the skin tissue and is designated as escharotic dermatitis. Some cutaneous damage may result in suppurative inflammation, characterized by the formation of superficial or deeper pustules.

The agents producing artificial skin damage are mainly: traumatic, caloric, actinic, electrical, and chemical. Traumatic dermatitis develops in various irritative mediums, or after pressure, licking, or other injuries to the skin.

Caloric dermatitis is caused by excessively high temperature, termed as dermatitis due to burns, or by excessively low temperature, as dermatitis due to frostbites.

Actinic dermatitis is induced by various kinds of irradiation. It develops as solar dermatitis after direct exposure to the sun, or after overexposure to a quartz lamp, x-ray, radium, atomic, or other radiations. The symptoms may be classified according to degree of severity: first, second, third, or fourth degree.

Toxic dermatitis develops when the causative agents are vegetable, mineral, and particularly chemical irritants.

Microgenic skin inflammations are caused by the entry into the skin tissues of various microorganisms, such as viruses, bacteria, fungi, and protozoa (fig. 1). These organisms may penetrate the skin from the outside through the damaged skin, or by way of the hair follicles, or the ducts of the sweat or the sebaceous glands, or from within the organism by the blood or lymph stream. Many different kinds of microorganisms can be found on the surface of the sound skin, sometimes even in pure culture without any pathogenic significance.

Microgenic skin inflammations include first of all microbial inflammations in which the cutaneous change is the major bodily symptom and are called infectious dermatoses. There are, however, many general infectious diseases during which the pathological changes involve the skin as well. These are termed infectious exanthematous diseases. Neurogenic skin inflammations, or dermatitis of neurogenic origin, have been studied very little in veterinary dermatology. Certain findings which have been made in human beings almost certainly might be applied to animals. So for instance "neurogenic herpes," also called "virus herpes" in man, seems



to have its counterpart in domestic animals. This question remains open for further research.

The course of an acute dermatitis is in comparison with the course of an acute eczema always of a shorter duration, and its prognosis is more favorable than in eczematous disorders.

Chronic inflammations of the skin are caused by the same agents as the acute dermatitis, but from the pathological standpoint in chronic dermatitis, inflammatory infiltration predominates and exudation never attains the degree found in acute dermatitis. The skin is consequently rougher, has a tougher consistency, a more dry squamous-crustous character; its elasticity is greatly lessened; the process is of long duration, and in some cases hypertrophy of the skin may develop. The prognosis is naturally less favorable.

The treatment of an acute dermatitis, particularly when larger skin areas are involved, requires not only the selection of the most appropriate external medication, respecting the character of the skin lesions, but it should be supported by internal treatment intended to increase the resistance of the affected animal. As external treatment progresses, it usually is necessary at different stages to change the concentration or even the preparation itself. In particularly sensitive animals, especially if there is excessive itching, the anesthetic ointments or sedative preparations or protective devices to avoid scratching should be applied as one of the most important parts of treatment.

The basic principle of treating chronic dermatitis is to attempt to direct it into an acute condition. Medication is chosen, therefore, which is able to increase the dilatation of the blood vessels, stimulating hyperemia and increased serous and leucocytic exudation. For that purpose are recommended not only effective chemical preparations but, especially, irradiation with quartz lamp and x-rays.

**Eczema.**—It is difficult to formulate a clear definition for eczema. A state of uncertainty and disagreement exists among authorities in both human and veterinary medicine. Often eczema is said to be a dermatosis or dermatitis of unknown origin. No satisfactory definition could be arrived at during the recent international congress of dermatologists. Hutyra, Marek, and

Manninger<sup>1</sup> use the term eczema to describe a distinct form of inflammation of the skin somewhat resembling catarrh of the mucous membranes, as a mild inflammatory reaction in the papillary and superficial layer of the corium. Bonjour and Rachewsky<sup>2</sup> are cited as representatives of a group which propose the theory that eczema is intimately related to vasomotor tension exerted upon both the skin and glandular system.

Scharp and Slanetz<sup>3</sup> present a number of factors which may contribute to the development of eczema, particularly a deficiency producing imbalance in metabolism.

Samberger,<sup>4</sup> human dermatologist, called attention to disturbances in the lymphatic secretion and circulation as essential factors. He considers eczema to be a combined product of a superficial skin inflammation and a permanent hyperproduction of lymph in the papillary skin region.

Highman<sup>5</sup> considers eczema an exudative cutaneous inflammation brought about when pathogenic agents precipitate a morbid response in predisposed skin tissue. It never occurs as an external disease alone. It is always associated with an internal disorder. Therefore, to distinguish eczematous skin lesions, it is necessary to be a good internist in dermatology.

Having given due consideration to other opinions regarding the origin of an eczema, I will now express my ideas based upon clinical experience. I believe that eczema is a superficial skin inflammation which may be produced by various external irritations, but it always involves a special local or general predisposition either of the whole skin, or of a certain skin organ only, such as the sebaceous glands. Any kind of eczema, therefore, is a dermatitis, but not every dermatitis is an eczema. In animals lacking any internal eczematous disposition, only dermatitis can be induced by external irritation, and such a dermatitis clears up within a shorter time. In animals having a special predisposition, on the other hand, an eczema will be produced by the same or lesser irritation, or sometimes without any irritation. This eczematous skin change is, however, of longer duration, obstinate for treatment, and the lesions are as a rule symmetrical in their distribution. Eczema presents a complex problem because it involves a complete and fundamental internal imbalance of the animal.



Eczematous skin changes are often associated with various digestive disorders, particularly during chronic catarrhal inflammations of the intestinal mucous



Fig. 2—"Back eczema" developed during chronic interstitial nephritis.

membranes, and during poisoning by faulty metabolic products elaborated within the body, the so-called "auto-intoxication."

Many chronic pathological changes of various internal organs develop accompanying eczematous skin eruptions localized on special parts of the body surface. For instance, during the chronic interstitial nephritis in dogs (fig. 2), eczematous changes appear most frequently in the lumbar and sacral region. During the chronic interstitial hepatitis, eczematous dermatoses have found symmetrically distributed on both sides of the neck,



Fig. 3—Squamous eczema caused by protein deficiency.

shoulder, and the trunk, particularly in horses, cattle, and dogs. Eczematous skin lesions have appeared in many species of animals suffering from deficiency of proteins, vitamins, hormones, and various metabolic disorders. Deficiencies of protein have been seen especially in young cattle in connection with a chronic squamous-crustous eczema in the neck region (fig. 3). Vitamin deficiency, producing eczema, has been found as an etiological factor in cattle, especially calves, also in pigs and dogs. The skin condition was relieved by administration of ascorbic acid, vitamin A, vitamin D, or biotin, previously termed vitamin H.

Canine eczema commonly develops from hormonal imbalance. It may occur in both male and female. In the male, eczematous dermatoses have been observed in connection with insufficiently developed testicles, in connection with carcinoma of testicles and in prostate disorders. Such cases have been treated successfully with testosterone. On the other hand, eczema may occur in animals with hyperproduction of sexual hormones. In such instances, castration has been the most effective treatment.

Hormonal imbalance occurs more often in female than in male dogs. Nilson<sup>6</sup> observed 150 bitches in which the eczematous skin lesions developed in certain phases of the sexual cycle. They could be divided into five groups: (1) dermatoses appearing in young bitches before their first estrus, (2) dermatoses arising during the period of heat, (3) dermatoses appearing at parturition, (4) dermatoses arising concurrently with pseudopregnancy, and (5) dermatoses appearing with visible disturbances of estrous cycle, which were the most frequent. In all cases, a low secretion of estrogen was established except where the dermatoses appeared in connection with pseudopregnancy.

I have observed cases of eczema in bitches after spaying and also in the course of a chronic metritis.

Allergy is one of the most frequent internal factors in the development of various types of eczema. Animal allergy is relatively common. During the past years, many puzzling disease syndromes, particularly skin disorders, have been wholly or partly explained on the basis of allergic hypersensitivity. Many types of eczema have been established and artificially pro-

duced as allergy, not only by various feeds but also by internal parasites, drugs, proteins, serums, vaccines, and many other substances.



Fig. 4—Bacterial allergy in swine erysipelas.

Atopic allergy may also be produced in animals by various plants, external parasites, externally applied chemicals, and other irritative agents. I have observed several cases of atopic allergy in dogs, produced by contact sensitivity to vaseline (petrolatum, paraffinum liquidum) which has been used as a vehicle in various ointments. Similar allergic constituents of lanolin have been described by Sulzberger and Lazar<sup>7</sup> in human beings. External parasites, such as fleas, lice, and ticks, often produce allergic dermatoses in dogs and cattle.

A physical allergy in animals is produced by light in the form of the so-called photosensitization.

Fungous allergy has etiological significance in trichophytosis; protozoan allergy occurs especially in dogs suffering from leptospirosis and leishmaniasis; bacterial allergy is well known in swine erysipelas, tuberculosis, and glanders (fig. 4). Virus allergy must be considered in connection with several virus diseases, such as pox, fibroma molluscum, equine infectious anemia, canine distemper, hog cholera, and many others.

Heredity is another factor in the development of eczematous skin lesions. This has been noted particularly in dogs, horses, and cattle. In horses the so-called "summer mange" has been considered by many prac-

titioners as being of hereditary origin, and French veterinarians recommend not to use such animals for breeding.

All these predisposing and etiological causes of eczema may act either independently without any noticeable external irritation, or they make it possible for very slight external influence to induce such cutaneous lesions. Particularly filthy and moist condition of the skin, repeated bathing with irritating soaps or other bath preparations, flea bites, scratching, and friction between sweating skin surfaces often lead to eczematous skin changes. The clinical picture of eczemas is variable, but they always take the form of a superficial



Fig. 5—Dietary eczema in cattle (food rash).

skin inflammation, which as a rule is distributed symmetrically over the body surface. The primary and secondary skin lesions may occur in numerous combinations from erythematous, papulous, vesicular, bullous, weeping, pustulous, squamous, and crustous lesions. In acute eczema, hyperemia and exudation prevail over infiltration. In chronic eczema, infiltration and squamous-crustous character predominate.

Different species of animals show certain specific variations in the clinical appear-

ance of eczema not only in the character, but also in the location and duration of the skin lesions. In horses, the most common is the chronic squamous-crustous eczema, termed "summer mange," and the moist eczema in the fetlock region called "scratches" or "eczematous greasy heel."

chronic diseases such as distomatosis and strongylosis. Moist eczema in sheep called "fat scab" or "acute weeping eczema" develops mainly in the neck, head, shoulder, back, and sometimes between the digits.

In goats, seborrheic eczema has been reported often (fig. 7).



Fig. 6—Seborrheic eczema in a horse.

A special type of an equine eczema is the "seborrheic eczema" characterized by hyperproduction of sebum (fig. 6).

In cattle, various types of eczema have been found especially among animals which are malnourished, neglected, or kept in excessively damp quarters. The eczema occurs mainly on the limbs, neck, root of the tail, between the hind legs, on the udder, and between the digits (fig. 5). In calves, the eczematous skin lesions are mostly characterized by scale formation around the ears and poll spreading over the neck and back to the base of the tail. In recent years, many cases of eczematous, squamous-crustous hyperkeratosis have been observed in cattle. Whether the special skin change in cattle called "x-disease" should be considered to be eczematous hyperkeratosis, is a matter for further research.

In sheep, a special type of chronic squamous eczema develops as a sequel to

In pigs, the eczematous dermatoses develop under conditions of malnutrition and poor care, particularly in young pigs. They are found on the lower part of the abdomen, on the medial thighs, sometimes on the face, and around the eyes.

Eczemas are an important skin disease in dogs. All of the eczemas caused mainly by internal disorders are characterized by a symmetrical localization and usually are found on a special cutaneous area. Acute eczema in dogs may occur as eczema rubrum, papulosum, vesiculosum, pustulosum, madigans, and squamo-crustosum. It may appear either singly or in different sequences and combinations. Chronic eczema in dogs is characterized by considerable thickening of the skin, which is dry and forms large folds with deep clefts covered with scales and crusts. The coat is thin because of atrophy of the hair follicles. Special localized eczemas in dogs usually

develop on the dorsum of the nose, around the eyes, in the lumbar region, or on the limbs. Eczematous squamous-crustous skin lesions localized around the base of the

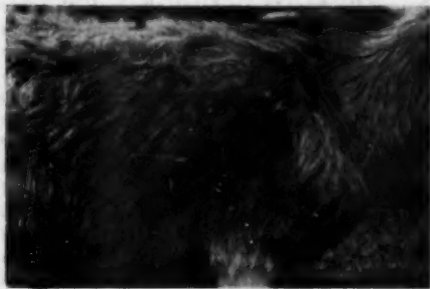


Fig. 7—Seborrheic eczema in a goat.

tail, anus, vagina, between the hind legs, on the scrotum and on the posterior lower part of the abdomen are usually closely associated with hormonal disorders, involving the gonads, adrenal glands, or hypophysis (fig. 8, 9). A special type of canine eczema called interdigital eczema often appears on the skin between the digits.

Eczematous skin lesions also occur in cats, furbearing and wild animals, and likewise among laboratory animals: rats, mice, guinea pigs, and hamsters.

**Treatment.**—Bearing in mind the internal and external origin of eczema, it is necessary to provide both internal and external treatment. Frequently a change of diet is a significant therapeutic measure. Many practitioners recommend feeding of fresh spleen and liver for diatetic treatment of eczemas in dogs.

For the internal treatment, oral, subcutaneous, or intravenous application of calcium, arsenical, and iodine preparations have been used. Vitamins, particularly vitamins A, B, D, and biotin, have proved helpful in many cases. It is important to avoid the influence of antivitamins.

In recent years, good results have been achieved in eczemas resulting from hormonal disorder with the application of hormones. The choice of the needed hormone depends upon the character of the hormonal imbalance. In eczemas which result from a deficiency, the hormones of the same sex should be administered. In cases of an

increased hormonal production, either the opposite hormone should be applied or the animal should be spayed or castrated. Also, hypophyseal hormone, hormone of the adrenal cortex (corticosterone) has been reported as an effective treatment.

The basic internal treatment of allergic dermatoses in animals requires elimination of the cause and immunization with extract of the offending proteins. When histamines or histamine-like substances are considered as primarily responsible for allergic skin lesions, antihistamines might be applied. Epinephrine, which often essentially relieves the symptoms of pruritic allergy, is considered to be an antihistamine.

In treatment of toxic eczemas good results have been recorded with intravenous injections of sodium thiosulfate.

Stimulation of the reticulo-endothelial system and the adrenal cortex by administration of nonspecific proteins, particularly autohemotherapy, has been employed in acute and chronic eczemas especially when associated with an intense itching. Sometimes systemic antipruritics and sedatives may be administered.

The local treatment of any type of eczema requires the preparation of the affected area by cleaning in order to permit proper contact of medication with the diseased skin surface.

The choice and application of any local treatment for eczema should respect one important general principal of dermatother-



Fig. 8—Squamous-crustous eczema in a dog caused by hormonal imbalance.



apy. This specifies that each type of skin lesion demands a special choice of the proper preparation. The use of nostrums recommended for any kind of eczema are not uni-



Fig. 9—The same dog as in figure 8 after three months hormonal treatment.

versally effective. It may be necessary, for example, to use a different treatment on the moist part of an affected skin area than is used in the dry part of the same affected area. There must likewise be taken into consideration the different skin qualities depending upon the body region and the species of the animal. The continuous use of a given preparation on the same skin area for a long time is not advisable. On the contrary, there should be change in treatment to correspond with alterations appearing in the development of cutaneous lesions. Nowadays, many nostrums are being advertised, some of which have complex formulas. Often simple and time-tested preparations are more effective. Sometimes the condition may be made worse by excessive medication.

**Eczematous Disorders of the External Ear Canal.**—These disorders are commonly called otitis externa. Some practitioners have made no particular differentiation between an otitis which is an eczema, and one which is a dermatitis. The etiology of these dermatoses shows a great variety.

The real dermatitis of the external ear canal is produced by an external irritation as it is seen in any other kind of a simple skin inflammation. Eczematous otitis always has an internal etiological factor, and is usually found symmetrically in both ears. Finally, there must be considered various infectious diseases which frequently show an association with external otitis, particularly as a typical complication of exanthematous distemper (fig. 10).

Local skin changes of the external ear and external auditory meatus may be divided in several groups. The mildest form is the erythematous, squamous otitis. Higher degree is represented by erythematous-ceruminous otitis which is often associated with an excessive secretion producing otorrhea. The third type is the squamo-crustous otitis, during which the developing of crusts predominates. Pustulous otitis occurs often in both ears simultaneously with pustulous eruptions in the inguinal region during the exanthematous form of canine distemper.

Ulcerous otitis represents an advanced form of otitis. This form is usually of a long duration and heals relatively slowly.

Chronic hyperplastic otitis is marked by an overwhelming prevalence of diffuse sclerosis and verrucous granulations, with induration of the meatus wall. The meatus itself becomes narrow and sometimes is blocked completely.

During the development of the described types of otitis, various secondary changes



Fig. 10—Eczematous otitis externa.



and complications may appear. They are produced by scratching or by secondary infections. Examples are hematoma of the ear, ulcer formation on the tip of the ear, or serious dermatosis of the surrounding skin. The complication of perforation of the tympanic membrane with resulting otitis media is comparatively rare.

The course and prognosis of an external otitis depend on many factors. Chronic eczematous otitis in long-haired dogs with pendulous ears usually has less favorable prognosis, especially when the auditory meatus has become narrow. Prognostical consideration must also be given to the possibility of complication and relapse.

The treatment of canine otitis is one of the most frequently encountered tasks of small animal practitioners. An otitis which is simple dermatitis requires only local treatment. When the ear skin changes are eczematous in origin, there must also be systemic treatment. For either kind of disorder, it is not advisable to use the same treatment throughout its entire course. On the contrary, the medication should change in conformance with the type of otitis and the response of the affected skin area. The internal and local treatment of the otitis generally corresponds to that of dermatitis or eczema found elsewhere on the body. In chronic hyperplastic otitis, when the ear canal has been very narrowed, a surgical procedure of enlarging of the ear canal permits more satisfactory treatment.

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**Blastomycosis in a Dog.**—What appears to be the eighth naturally occurring case of pulmonary blastomycosis in the dog is reported in the *North American Veterinarian* (Aug., 1951:555-558). Blastomycosis has been known as a distinct disease since 1894.

### Experimental Anastomoses of the Pancreatic Duct

The larger pancreatic duct in 65 dogs was divided and implanted into the duodenum by several different methods (Ann. Surg., 132, 1950). In one group, the end of the divided duct was carefully sutured with No. 0000 silk sutures to the mucosa and submucosa of a tiny opening in the duodenum. Buttressing sutures between the bowel wall and pancreas were used. The same procedure was used on group 2, except that a polythene tube was used as a splint for the anastomosis. In group 3, the duct was implanted by means of a single suture pulling the duct through the duodenal wall and anchoring it to the opposite wall. In group 4, the procedure was the same as in group 3, except that a polythene tube was inserted into the duct. In group 5, a very small tube (to avoid pressure) was used as in group 4. In group 6, a necrosing suture was used to implant the ligated duct into the duodenum. In group 7, a catheter fitting the duct tightly and leading the secretions far away from the anastomosis was used. Group 8 was used to ascertain the effect of implanting the pancreatic stump into the stomach, the duodenum, and the jejunum.

Studies at various intervals of the pancreas and the anastomoses revealed that most of the animals survived in good health and showed no signs of deficiency even when the anastomoses were found to be obstructed.

The most satisfactory patent anastomoses were found in groups 1 and 2, with uniformly excellent results only in group 2, i.e., those with careful suture anastomosis over a tube which was kept in place temporarily. Obstruction, fibrosis, pancreatitis, and leakage occurred in a small percentage of all the other groups. In the group in which the stumps of the pancreas were implanted into the stomach, the pancreas was digested and the duct was pinhole in size.

**Insecticides for Agriculture.**—Methoxychlor, lindane, and piperonyl butoxide mixtures are in a class which are not regarded as hazardous, and so are recommended for use against flies and lice on animals, including dairy cattle.—*Canad. J. Comp. Med. and Vet. Sci.*, June, 1951: 136.

# A Clinical and Laboratory Evaluation of the Sulkowitch Test As a Diagnostic Aid in Bovine Hypocalcemia

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DETWEILER and Martin<sup>4</sup> recently indicated that the Sulkowitch test for rapidly estimating the amount of calcium in the urine would be of value in the diagnosis of bovine hypocalcemia. Their work showed that the amount of calcium in the urine roughly parallels that in the serum, above a certain level. In interpreting the test, these authors claimed that a negative test, where no precipitate developed when the Sulkowitch reagent is added to urine, usually indicated a subnormal or low normal serum calcium of 8.5 mg./100 cc. of blood, or below. A slight precipitate usually developed in the urine at serum calcium values of 8.5 to 9.5 mg./100 cc. of blood. A moderate to distinct precipitate developed at serum calcium values of 9.5 to 18.0 mg./100 cc., especially the higher values.

Gradwohl<sup>1</sup> stated concerning the Sulkowitch test as used in human beings: "An aliquot portion of a twenty-four hour specimen must be used. To quote Fennel, 'Anything but an aliquot portion of a twenty-four hour specimen is a delusion.' Calcium excretion rates are not equal at any two moments of the day." Blosser and Smith<sup>2</sup> stated: "Urinary calcium excretion by 8 Jersey cows was quite variable at parturition. There was no consistent or appreciable variation between the normal, milk fever, and borderline cows. Neither did a relation exist between calcium losses via urinary channels and changes in the blood calcium."

The early work with the Sulkowitch test was disappointing. Collecting and testing 24-hour urine samples as suggested by Gradwohl was obviously impossible in the field under farm conditions. Since the summaries of Gradwohl, and Blosser and Smith were at variance with what Detweiler and Martin had reported, further work was continued with the following results.

## METHODS

When called to treat clinical cases of parturient paresis or milk fever, samples of blood and urine were taken before the cow was treated. The blood in all cases was taken from the jugular vein. The

urine in the milk fever cases was taken by catheterization of the bladder. Samples of blood and urine were taken from normal healthy cows used as controls in a similar manner except that urine was obtained by massage of the vulva whenever possible. At least half of these normal cows were nonparturient and nonpregnant.

The blood was taken to the clinical pathology laboratory where serum calcium levels were determined by the Clark and Collip method.

The urine in all but 3 or 4 cases of milk fever was checked by the Sulkowitch test in the field and then rechecked in the laboratory within six hours. The Sulkowitch reagent used in the field was a commercial preparation.\* The laboratory used both this reagent and one prepared by them following the formula described by Detweiler and Martin, and Gradwohl. There was close agreement between the results obtained with the two reagents. The procedure used in this test was the same as described by Detweiler and Martin. A standard prepared from the subject's urine was used in each determination. Later in this work, the urine was tested further for pH values and albumen.

\*"Cal Test", Pitman-Moore, Indianapolis, Ind.

TABLE I—Hypocalcemic Cows

Cow (No.)	Serum calcium (mg./100 cc.)	Sulkowitch test	Albumin	pH
1	3.1	+++	.....	.....
2	3.7	+++	.....	.....
3	3.9	—	.....	.....
4	4.5	—	.....	.....
5	4.5	—	.....	.....
6	4.6	+	.....	.....
7	4.6	—	.....	.....
8	5.1	—	.....	.....
9	5.3	+	.....	.....
10	5.5	+++	.....	.....
11	6.0	+++	.....	.....
12	6.2	+++	.....	.....
13	3.8	+++	.....	.....
14	4.6	—	+++	.....
15	4.0	—	+++	.....
16	3.8	+++	+++	.....
17	3.9	+++	+	.....
18	4.9	+	+	.....
19	3.8	—	+	.....
20	3.7	+++	+++	8.5
21	5.5	+++	+++	7.0
22	5.2	+	+	8.5
23	4.8	—	—	8.5
24*	7.7	+	.....	.....
25*	8.4	+	.....	.....
26*	7.4	+	.....	.....
27*	8.2	—	.....	.....
28*	8.4	—	.....	8.4

\*Symptoms of hypocalcemia were lacking.

— = Negative; + = trace of precipitate; +++ = slight to moderate precipitate; ++++ = moderate to distinct precipitate.

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## RESULTS

The blood and urine of 28 hypocalcemic and 28 normal cows were tested. The results are recorded in tables 1, 2, and 3. Twenty-three of the 28 hypocalcemic cows had parturient paresis and responded to calcium therapy. The remaining 5 cases

should have given essentially negative reactions to this test, and from the normal cows, positive or occasionally negative reactions. This experiment does not confirm their findings. In fact, no essential difference could be observed between normal and hypocalcemic cows and their reactions to the Sulkowitch test.

TABLE 2—Normal Control Cows\*

Cow (No.)	Blood		Urine	
	Serum calcium (mg./100 cc.)	Sulkowitch test	Albumin	pH
1	9.6	—	—	—
2	10.1	++	—	—
3	9.7	—	—	—
4	10.1	+	—	—
5	9.3	—	—	—
6	9.1	+	—	—
7	9.6	—	++	—
8	10.6	+	—	—
9	10.9	++	—	—
10	10.2	—	—	—
11	10.6	—	—	—
12	10.2	++	—	—
13	9.6	+	—	—
14	10.9	++	—	—
15	9.6	+++	—	—
16	10.1	+	—	8.6
17	10.0	+++	—	8.4
18	9.4	—	—	8.6
19	10.2	+++	—	8.6
20	10.0	+++	+	8.6
21	10.6	—	—	8.5
22	10.8	++	—	8.4
23	10.2	—	—	8.4
24	10.0	—	—	8.4
25	10.7	—	—	8.5
26	10.0	+	++	7.0
27	10.4	+++	++	8.4
28	8.6	+	+++	—

\*Most of these were open, lactating cows.  
— = Negative; + = trace of precipitate; ++ = slight to moderate precipitate; +++ = moderate to distinct precipitate.

showed no, or only very slight, symptoms of hypocalcemia. They were included in this hypocalcemic group since Allcroft<sup>1</sup> found the normal range of serum calcium in the bovine animal to be 8.5 to 11.4 mg./100 cc. The symbols used to classify the degree of precipitation of calcium salts in the urine to which the reagent had been added were similar to those adopted by Detweiler and Martin.

The urine from 11 hypocalcemic and 11 normal cows gave negative reactions to this test. According to Detweiler and Martin, the urine from all the hypocalcemic cows

TABLE 3—A Comparison of the Results of the Application of the Sulkowitch Test to the Urine of Hypocalcemic and Normal Cattle

	Neg. test		Positive test		
	No precip.	Trace	Slight to Mod.	mod. distinct	Total
Hypocalcemic cows (28)	11 (39.3%)	3	7	7	17 (60.7%)
Normal cows (28)	11 (39.3%)	7	5	5	17 (60.7%)

## DISCUSSION

Rather early in this experiment, these above observations seemed apparent. Numerous checks on techniques, human errors, and other constituents and characteristics of the urine that might alter the results of the test were made. Sulkowitch tests were made in the field by one clinician immediately after withdrawing the urine and then a laboratory test was performed by another clinician with essentially similar results. Similar results were obtained by Sulkowitch reagents prepared by a commercial firm and by the laboratory. Detweiler<sup>3</sup> noted that occasionally in samples of urine that had been allowed to stand, a slight turbidity developed when the reagent was added, giving a false positive reaction. This was also occasionally observed, but the nature of the turbidity was different from the typical precipitate. Later in our series, the possibility that albumin or the pH of the urine might interfere with the test was considered. pH values and reactions to the Sulkowitch test could not be correlated. Sulkowitch tests on urine containing albumin and on albumin-free urine to which serum albumin was added showed that albumin had no effect on this test. It was interesting to note the greatly increased incidence of albumin in the urine of milk-fever or parturient cows, as compared with normal or nonparturient cattle. This should be investigated further.

## CONCLUSION

In a study of 56 hypocalcemic and normal cows, the Sulkowitch test applied to the urine did not give an indication of the serum calcium level and, thus, was no aid in the field diagnosis of hypocalcemia in the cow.

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### A New Strain of Variant Hog Cholera Virus (Virus W)—Preliminary Report

A new filterable agent, heretofore undescribed in veterinary literature, has been isolated by the writer from swine in an apparently pure form. The virus, against which swine immune to cholera are unprotected, has been given the name "virus W" and appears to be of a definitely fixed nature.

The incubation period of virus W in susceptible swine is forty-eight to seventy-two hours. Temperature rise and leukopenia are the initial manifestations of disease and become evident within forty-eight to seventy-two hours in young susceptible swine. The leukopenia may persist for three to four days and may be followed by leukocytosis. Swine of all ages are susceptible, but a resistance factor appears to increase with age.

There are no observable manifestations of disease when virus W alone is involved. Serious complications resulting from the virus are to be expected only when it is involved with other viral or bacterial infections, nutritional disturbances, or parasitic infestations.

Immunity to hog cholera does not protect against virus W.

Immunity to virus W protects completely against challenge with regular hog cholera virus, and protects completely against challenge with virus W.—*Richard L. Williamson, D.V.M., Fort Dodge Laboratories, Fort Dodge, Iowa.*

A further report on field and laboratory studies of the virus will appear in an early issue of the JOURNAL.—THE EDITORS.

A substantial number of infectious and parasitic agents apparently may pass from active or passive residence in poultry to man, according to Dr. C. A. Brandly (*Pub. Health Rep.*, May 25, 1951).

### A New Member of the Psittacosis-Lymphogranuloma Viruses

From portions of intestines and feces of apparently normal calves, a virus that produces elementary bodies was procured in guinea pigs and in embryonating eggs. Morphologically and tinctorially, this virus closely resembled members of the psittacosis-lymphogranuloma group of viruses and it shared a common antigen or antigens with them. Comparison of serological, pathogenic, and other properties indicated that this virus from calves is a new member of the psittacosis-lymphogranuloma group and, in keeping with classification practices, it is provisionally named *Miyagawanella bovis* (*J. Exptl. Med.*, June, 1951: 587).

**Subclinical Rabies in Dogs.**—Rabies virus can be excreted in the saliva of vampire bats for several months following apparent recovery from the infection. Such a condition has been reported in several instances in dogs, also, although most rabid dogs die from the infection. It is the subclinical infection of rabies, which is rare, that is of especial importance to persons, because the offending animal, after having bitten a person, apparently remains healthy on observation and so no antirabic treatment is taken. Several deaths have been attributed to such instances.—*North Am. Vet.*, Aug., 1951: 551.

### Listeriosis

Listeriosis, or circling disease, in sheep consists essentially of an inflammation of the brain caused by the germ known as *Listeria monocytogenes*.

Since the disease may be confused with other febrile disorders, the isolation of the organism is essential to the establishment of a definite diagnosis. The early recognition of this malady in animals affected (swine, sheep, cattle, foxes, man) may prevent its becoming a serious public health problem.

It is not known how the disease is spread, and there are no proved means of prevention or treatment. Diagnosis depends upon laboratory examinations, since autopsy does not reveal characteristic changes in the body.—*Wm. H. Shannon, D.V.M., Chief Veterinary Officer for Massachusetts.*



### Canker in the Bovine Animal

D. D. DELAHANTY, D.V.M., M.S.

Fort Collins, Colorado

A 7-month-old Holstein-Friesian heifer in good condition was admitted to the Colorado A. & M. veterinary clinic for treatment of a "stubborn case of foot rot." At the onset, the herdsman had used a short



Fig. 1—Condition of forefeet on presentation.

length of rope between the claws "to burn out the infection." This was followed by applications of tincture of iodine and copper sulfate crystals. The veterinarian had no success in treatment with sulfonamides parenterally and locally.

The initial examination revealed callosities on the anterior aspect of the carpi and fetlock joints, for the animal stood on the canon bones. There were extensive papillomatous growths covering the entire sole of both claws of the left forefoot, while on the right forefoot the digital cushions were affected with the same degenerative process (fig. 1). Both front feet were exceedingly tender, and light pressure elicited pain. A foul sour odor similar to canker of the sole in the horse was present.

From the veterinary hospital, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins.

Both hind feet had thickenings with small, pale papillae present in the interdigital spaces. On pressure in these spaces, there was slight tenderness.

A diagnosis of canker was made and a most unfavorable prognosis given.

The following day, the animal was prepared for surgery, and the forefeet were pared, scrubbed, and disinfected. A 2 per cent procaine volar nerve block was given and then the canon bone was circumscribed with the same anesthetic. A tourniquet was applied, and the sole and walls were stripped of all keratinized material down



Fig. 2—Condition of forefeet at autopsy.

well into the sensitive laminae. Sterile sulfathiazole crystals were dusted into the four claws and compression bandages were applied. Six weeks later, recurrence became visible; and ten weeks after the first surgical interference, the operation was repeated. Recurrence then followed the second and third operations, all similar to the first surgical interference, and the animal was euthanized (fig. 2).

**Conclusions.**—Canker does occur in bovine animals, and when more than one foot is affected the prognosis should be most unfavorable.

**Virus in Urine Factor in Infectious Hepatitis in Dogs.**—The virus of infectious hepatitis of dogs has been recovered from the urine at intervals of three days after inoculation to at least 161 days afterward. Inasmuch as blood, saliva, nasal washings, and feces from apparently recovered dogs did not contain virus, it appears that infected urine is important in the spread of the disease.—*Proc. Soc. Exptl. Biol. and Med.*, 77, 1951: 279.



## Chloromycetin and Terramycin for Infectious Sinusitis of Turkeys

L. C. GRUMBLES, D.V.M., and  
W. A. BONEY, JR., D.V.M., M.S.

College Station, Texas

The value of streptomycin and aureomycin in the treatment of infectious sinusitis of turkeys has been reported by several investigators.<sup>1-5</sup> To be effective, both drugs must be injected directly into the affected sinus. The object of this paper is to report the effect of chloromycetin and terramycin in the treatment of infectious sinusitis of turkeys when the drugs are administered in the ration.

**Materials and Methods.**—The poults used in this study varied in age from 6 to 12 weeks. All were inoculated with a known egg-propagated strain of sinusitis virus. The drug treatments were started approximately two to three weeks after inoculation and in all instances were given in an all-mash ration.

In study 1 (lots 1 and 2), 20 affected poults were divided into two lots of 10 each. One group received 0.5 per cent chloromycetin for twelve days. The other group was maintained as untreated controls.

In study 2 (lots 1A, 2A, 3A, and 4A), 40 affected poults were divided into four lots of 10 poults each. One group received 0.5 per cent chloromycetin for eight days; a second group received 0.25 per cent chloromycetin for eight days; while a third group received 0.5 per cent of terramycin for seven days. The fourth lot served as untreated controls.

The 10 control birds from study 1 were later given chloromycetin at a concentration of 0.1 per cent for seven days and designated as lot 1B.

The results of the treatments were based on the visible symptoms in the birds. Birds which had no sinus swelling, nasal discharge, or lower respiratory symptoms were considered recovered. The birds were observed for at least one month after treatment was discontinued in order to determine the recurrence of symptoms.

**Results and Discussion.**—The results of these studies are summarized in table 1.

Chloromycetin in an all-mash ration was effective in treating infectious sinusitis when given at a concentration of 0.5 or 0.25 per cent. In lot 2, which received 0.5 per cent chloromycetin, 8 of the 10 birds had recovered after seven days on the drug,

and all had recovered after ten days of treatment. Lot 1A received 0.5 per cent of chloromycetin for eight days. On the seventh day of treatment, 9 of the 10 birds had recovered. On the fourteenth day after treatment was started, all birds in this group apparently had recovered from the disease. Group 2A received chloromycetin for eight days at a concentration of 0.25 per cent of the ration. In this lot, all birds were apparently recovered from the disease on the seventh day of treatment.

TABLE 1—Results of Studies of Chloromycetin and Terramycin in the Treatment of Infectious Sinusitis of Turkeys

Lot*	Treatment	Results after Treatment (% Recovery)			Remarks
		7 Days	10 Days	14 Days	
1	None	0	0	0	—
2	0.5% chloromycetin in mash for 12 days.	80	100	—	Sinusitis recurred in 1 bird.
1A	0.5% chloromycetin in mash for 8 days.	90	90	100	—
2A	0.25% chloromycetin in mash for 8 days.	100	—	—	Sinusitis recurred in 1 bird.
3A	0.5% terramycin in mash for 7 days.	20	20	20	—
4A	None	0	0	0	—
1B	0.1% chloromycetin in mash for 7 days.	0	0	10	The birds treated in this lot were the controls from lot 1.

\*There were 10 birds in each lot.

Lot 1B received chloromycetin at a concentration of 0.1 per cent for seven days. This concentration of the drug apparently had little effect on the course of the disease. On the fourteenth day after treatment was instigated, 1 bird of the 10 treated had apparently recovered.

In lot 3A, only 2 birds responded to terramycin at a concentration of 0.5 per cent for seven days. The treatment could not be extended in this lot because the supply of drug was exhausted. None of the control birds made a spontaneous recovery during the fourteen-day observation period.

Sinusitis recurred in 1 bird from lot 2 and 1 from lot 2A after treatment was discontinued.

While the lower respiratory symptoms were not evaluated on an individual bird basis, the complete absence of such symptoms in lots 2, 1A, and 2A by the tenth to fourteenth day after treatment was started, indicates that chloromycetin was effective against the lower respiratory infection as

Park, Davis and Company, Detroit, Mich. furnished the chloromycetin and Chas. Pfizer and Company, Inc., Brooklyn, New York furnished the terramycin.

From the Texas Agricultural Experiment Station and School of Veterinary Medicine, College Station.

well as the localized sinus infection. This is in contrast to streptomycin which had little or no effect on the lower respiratory infection.<sup>6</sup> Lower respiratory symptoms were marked in all control groups.

**Summary.**—Chloromycetin in an all-mash ration was effective in treating turkeys with experimentally produced infectious sinusitis. When a drug concentration of 0.5 and 0.25 per cent was given for eight to twelve days, all poult treated had apparently recovered by the seventh to fourteenth day after the treatment was started. Chloromycetin at a concentration of 0.1 per cent for seven days had little influence on the course of the disease.

Terramycin was not as effective as chloromycetin, since only 2 birds out of 10 responded to a seven-day treatment with a concentration of 0.5 per cent in an all-mash ration.

Symptoms of sinusitis recurred in 2 of the 30 poults which responded to the chloromycetin treatment.

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- Use of the ABR (milk ring) test became official in Wisconsin's brucellosis control program (July 1, 1951) after the governor signed a bill providing for the establishment of seven testing laboratories at strategic locations. Two of the laboratories are under federal supervision, the other five under state supervision, each headed by a veterinarian.

## Salmonella and Shigella Organisms in the Intestinal Tracts of Dogs in Mexico City

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J. OLARTE, Q.B.P.  
Mexico, D.F.

Several investigators have encountered *Salmonella* organisms in apparently healthy dogs and in dogs with enteritis. The literature concerning this subject has been revised recently by Gorham and Garner<sup>1</sup> and Adler, Willers, and Jevine.<sup>2</sup> Since the dog lives in close contact with man, the elimination of pathogenic microorganisms from its intestine is an important consideration in the epidemiology of human enteric infections.

The present study was undertaken to determine the incidence of *Salmonella*; it also points out the presence of *Shigella* in dogs in Mexico City, not considering the part which these microorganisms might play in the causation of disease in the animals studied.

**Materials and Methods.**—The presence of *Salmonella* in the intestine of 100 adult dogs brought in for observation in the Anti-Rabies Institute of Mexico City was investigated.

Material for culture was obtained directly, using a glass spoon to scrape the mucosa of the rectum. This technique and the isolation and classification of the bacteria were carried out in accordance with methods described previously.<sup>3</sup>

**Results.**—*Salmonella* was encountered in 9 dogs and *Shigella* in 2, as follows: *Salmonella new brunswick* (2); *Salmonella give* (2); *Salmonella cerro* (1); *Salmonella montevideo* (2); *Salmonella derby* (1); *Salmonella meleagridis* (1); *Shigella sonnei* (1); and *Shigella alcalescens-dispar* 02 (*Shig. tieté*) (1).

**Discussion.**—Nine per cent of the dogs studied were eliminating *Salmonella*, and 2 per cent *Shigella*.

The incidence of *Salmonella* in the dog as determined by other workers is variable,

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The cultures of *Salmonella* and *Shigella* were confirmed through the courtesy of Drs. P. R. Edwards and W. H. Ewing, Enteric Bacteriology Laboratories, Communicable Disease Center, Atlanta, Ga.  
The authors thank Miss Alicia Mendiola Velázquez for her technical collaboration.

apparently having some relation to the locality. According to Gorham and Garner,<sup>4</sup> the percentage of dogs infected is less from nonurban areas than from metropolitan areas.

*Salmonella new brunswick*, although universally distributed, is not commonly found either in man or animals.

*Salmonella cerro*, originally described by Hormaeche, Peluffo, and Aleppo<sup>5</sup> in Uruguay, was found by Varela and Zozaya<sup>6</sup> in Mexico in the mesenteric lymph nodes of pigs. It has been reported by Edwards, Bruner, and Moran<sup>3</sup> and Bruner and Moran<sup>2</sup> in dogs in the United States.

*Salmonella derby*, *S. montevideo*, *S. give*, and *S. meleagridis* are types most frequently found in man and animals.

It has been considered that *Shigella* are organisms found solely in man. We do not know of reports of the presence of this bacteria in the dog. Of the two types which were found in this study, *Shig. sonnei* is highly pathogenic for man.

**Summary.**—Of 100 dogs studied, 2 harbored *S. new brunswick*; 2 *S. montevideo*;

2 *S. give*; 1 *S. derby*; 1 *S. meleagridis*; 1 *S. cerro*; 1 *Shig. sonnei*; and 1 *Shig. alkalescens-dispar* 02 (*Shig. tieté*).

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#### Parasitism in Bison

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The largest mammal in North America within historic times is the bison, or buffalo as it is usually called. It is also the most dangerous to handle. The largest private

herd, over 300, is located at Independence, Kan. Because of the present scarcity of bison and public sentiment that goes with the former uncounted millions that fed, clothed, housed, and provided fuel for the early settlers and made possible the winning of the West, these animals are becoming increasingly important economically. Buffalo burgers are still a rarity.

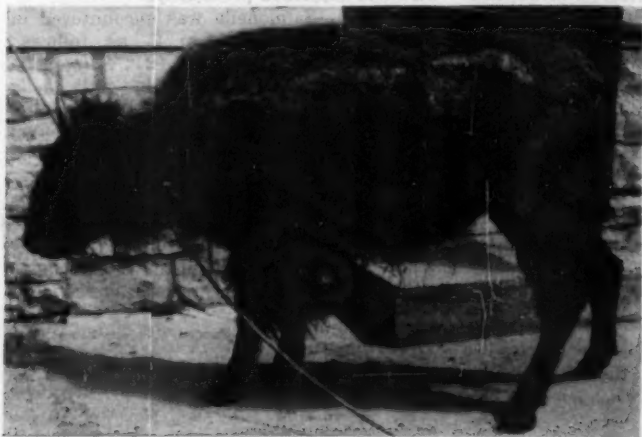


Fig. 1—A bison (cow) which showed a high egg count of *Haemonchus contortus* in the feces. The hair was falling out and the skin was scabby, resembling hyperkeratosis.

A bison bull is approximately 11 ft. long, including the 2-ft. tail, and stands  $5\frac{1}{2}$  to 6 ft. at the shoulder. The average weight is around 1,800 lb., but old bulls have been known to weigh 2,200 lb. Females are somewhat smaller, weighing 800 to 1,200

*gostomum radiatum*), and very few stomach worms (*Haemonchus contortus*), but extensive lesions on the stomach and intestinal mucosa where they had been. With such history and herd check, the parasitism seems to be the entire causative factor.



Fig. 2—Part of the herd of bison under treatment for *Haemonchus contortus*.

lb. They usually produce one calf a year. They are unbelievably fast in their movements, and butt with their eyes open.

The local veterinarian at Independence, Dr. J. T. McGinty, had helped me vaccinate some zoo bison when he was a student. On May 14, 1951, I was asked to help him solve a disease problem in the above mentioned herd. Over several months, 7 animals had become sick, thin, and developed a diarrhea and died.

A sick cow (fig. 1) trucked to our clinic had a high egg-count of *Haemonchus contortus* in her thin feces. Her hair was falling out in great patches and the skin was scabby and resembled "x-disease" (hyperkeratosis). Her temperature was 102.8 F. and the blood count was almost normal except for a low red cell count of 4,000,000 per cubic millimeter. This cow was treated three times with 6 oz. of 1 per cent copper sulfate solution and 2 oz. of phenothiazine solution by means of a stomach tube. The feces became normal in consistency and the bison appeared brighter and more active for a week and then suddenly became very weak and died.

Postmortem examination showed extensive lungworm (*Dictyocaulus viviparus*) infection, numerous nodular worms (*Oesoph-*

The problem of treating the remainder of the herd is going to demand utmost cooperation and clever sanitation, including all aids such as separate small herd grouping, routine fecal checks, isolation of calves, rotation of pastures, and burning of contaminated manure and, in general, a challenge to combat a difficult foe with inadequate disease control weapons.

### Algal Poisoning in Alberta

Specific species of water algae which will appear on the surface of still bodies of water when climatic conditions are favorable for their growth are definitely toxic for animals. Poisonings occur when the algae become concentrated along a shore as a result of gentle winds. The toxic properties of the algae appear to be transient. Whether or not it is related to the particular stage of growth of the algae or even with algae decomposition is still unexplained, and conclusions are impossible from the limited information in this report (*Canad. J. Comp. Med. and Vet. Sci.*, Aug. 1951:198).

As yet, the poisonous substance has not been recovered and identified by chemical analysis. Sodium thiosulfate and sodium nitrite solution, intravenously, is a successful curative agent if administered soon enough.

Dr. Frick is head of the Department of Surgery and Medicine, and director of clinics, School of Veterinary Medicine, Kansas State College, Manhattan.



# NUTRITION

## Normal Rations Contain Sufficient Riboflavin for Pigs

One of the most important vitamins for efficient growth of pigs, vitamin B<sub>2</sub>, or riboflavin, is usually available in sufficient amounts in farm-grown grains and forages, according to recent studies conducted at the Department of Agriculture's research center at Beltsville, Md.

Even pigs raised in a drylot (without pasture) will get enough riboflavin in a good normal ration to supply the needs for maximum growth. In fact, it was necessary in these feeding tests to use hominy grits in place of yellow corn meal and reduce the quantity of alfalfa meal to get a ration low in riboflavin. The pigs fed on the mixture containing hominy grits required more feed to produce a pound of gain than similar pigs fed normal rations. A good normal ration for growing pigs might include yellow corn meal, 70 parts; soybean meal, 10.5 parts; linseed meal, 6 parts; alfalfa meal, 6 parts; tankage, 6 parts; and a mineral mixture, 1.5 parts.

The pigs fed the vitamin-deficient ration had poor appetites, rough coats, and rough skin that was sometimes coated with secretions from skin glands. The effects of the riboflavin on growth of pigs was especially noticeable up to 10 weeks of age.

The ration low in riboflavin contained only 0.55 mg. of the vitamin for each pound of feed. The normal ration contained 0.83 mg. per pound of feed, and two other rations for similar pigs contained 1.25 and 1.65 mg. per pound. But the increased amount of the vitamin seemed to have no effect on the rate of gain. There were no significant differences in feed requirements between the three higher levels, nor were the differences in daily gains significant.

Pantothenic acid deficiency in the young pig is characterized by poor growth, loss of appetite, scours, lacrimation, dermatitis, coughing, loss of suckling reflex, a dark

brown exudate around the eyes, spastic gait, "goose stepping," and alopecia.

The daily feeding of 10 to 20 mg. of calcium pantothenate resulted in complete recovery.—*J. Anim. Sci., Feb., 1951.*

## The Effect of Low Manganese Rations on Dairy Cattle

A nuisance sterility exists and represents about 10 per cent of the cattle of certain herds where low manganese rations are fed. This type of sterility is persistent and recurs from year to year on farms where the manganese content of forage falls below 20 p.p.m.

These experiments (*J. Dai. Sci., May, 1951*) seem to indicate that rations made up of mixed hay, corn silage, and a grain mixture centered chiefly around corn and its by-products, may be marginal in their manganese content since there was some delay in the onset of the first evidence of estrus, a slightly reduced conception rate, and a greater number of calves born with weak legs and pasterns at the first calving.

The only organ or tissue affected by low concentrations of dietary manganese was the ovary and, in this case, the ovarian tissue of the low manganese-fed cattle contained 0.85  $\gamma$  per gram of dry weight as compared to 2  $\gamma$  + for the supplemented animals. This again would tend to support the suggestion that low manganese, of the order of 10 p.p.m. in the ration, may be marginal or borderline as far as optimum reproductive performance is concerned.

## Trace Elements in the Feeds, Organs, and Tissues of Repeat Breeding Cows

In laboratory animals subminimal ingestion of certain trace elements, especially manganese, has led to infertility and reproductive failures. The possibility of a trace element deficiency as a likely cause of infertility in cattle is pertinent in view of the variable concentration of some of the trace elements present in feeds.

In an effort to determine the relationship



of trace minerals to the repeat breeding-cow problem, a study of the distribution of manganese and cobalt in the feeds fed the cows from problem herds and the distribution of cobalt and manganese in certain tissues and organs of problem cows has been made (*J. Dai. Sci.*, May, 1951). It is evident that no single cause was responsible for the repeat breeder cow from these herds. Low values of blood plasma and ascorbic acid were found to exist. There was definite evidence of low or marginal cobalt intake associated with many of these problem herds. The manganese concentrations of the feeds from these farms was on the low side of the normal range, while ovarian concentrations were definitely low. It appears from these data that trace minerals have little if any direct relationship to the repeat breeding-cow problem, although this possibility is not precluded by the data.

### Vitamin A Depletion in Dairy Calves

A quantitative assay of the vitamin A stores, not involving sacrifice nor causing clinical or pathological changes, is needed to evaluate different dietary sources and ways of administering vitamin A and carotene to young dairy calves (*J. Dai. Sci.*, May, 1951: 386-395).

The effect of a vitamin A depletion ration on live weight, carotene, and vitamin A levels in the blood and liver, clinical appearance, and microscopic anatomy was studied in 21 young calves beginning at 106 days of age. All calves were fed a vitamin A depletion ration of 2.67 lb. per 100 lb. of live weight, with 6 of the calves receiving in addition a daily equivalent of 107,143 U.S.P. units of vitamin A.

Until the blood-plasma level decreased to 4  $\gamma$  per cent, all calves readily consumed the vitamin A depletion ration. At this level of plasma vitamin A, 7 of the calves fed only the depletion ration began refusing some feed. Live weight was not affected and both the gain in live weight and rate of gain were not significantly different between the groups of calves.

Blood plasma carotene decreased in all calves with successive weeks on experiment, and was characterized by a relatively rapid decrease early in the experimental period with a marked decline in rate of decrease occurring during the middle and end of the experimental period. In contrast, plasma

vitamin A values decreased in a uniform manner regardless of the level and, therefore, indicated a possible means of measuring vitamin A stores by prediction, using this relatively uniform rate of decrease as a standard. The liver stores of vitamin A were considered depleted in those calves receiving only the vitamin A depletion ration.

Spinal fluid pressures at the termination of the experimental period were elevated in the calves receiving only the depletion ration, while those receiving the supplemental vitamin A remained essentially the same as at the start of the experiment. Exophthalmos was observed in 6 calves, muscular incoordination in 5, diarrhea in 4, and convulsions in 1, all symptoms occurring toward the termination of the experiment for the individual calves.

Squamous metaplasia of the interlobular and main ducts of the parotid gland was observed in 8 of 9 depleted calves and in none of the 6 controls.

### Toxic Factor in Citrus Seed Meal

Citrus seed meal, a by-product of the citrus canning and, subsequently, the citrus seed oil industries, is potentially an important feed ingredient for growing chicks because the availability of this high protein product parallels an acknowledged need for vegetable protein in chick feeding (*Tech. Bull.*, Univ. Florida, May, 1951: 5, 35).

Experiments including 20 per cent of commercially prepared citrus seed meal in the ration of White Leghorns demonstrated that, as now prepared, this by-product of the citrus canning and citrus seed oil industries is unsatisfactory for chick growth. A high mortality resulted during the first three weeks in each of these studies. Enlarged gall bladder and sometimes mottled liver, ascites, and congestion of the intestinal tract were the manifestations observed.

The primary deleterious factor was found to be a white crystalline compound soluble in acetone and 95 per cent ethyl alcohol, but insoluble in water and diethyl ether. Chemical analysis suggests that this compound is limonin:

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# EDITORIAL

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## The Registry of Veterinary Pathology Will Help You if You Will Help It

Are you familiar with the Registry of Veterinary Pathology? Do you contribute to it? It was established to serve the veterinary profession. If you will support it, it will help you in return. It is housed with the Armed Forces Institute of Pathology, Washington, D. C., and is sponsored by the AVMA. The Registry was founded several years ago and organized in a manner similar to the many registries at the Institute which study the diseases of man. During the few years since its organization, it has become one of the leading collections of veterinary pathology in this country.

What made the Armed Forces Institute of Pathology an ideal location for the Registry of Veterinary Pathology? The A.F.I.P. had the cataloguing and statistical equipment, together with the clerical help necessary for the handling of a large amount of data. It had a technical staff that could be expanded to process the increased volume of tissues and to make and produce photographs and other illustrative material. A professional staff of outstanding veterinary, medical, and dental consultants was immediately available to aid the new Registry and to study and give opinions on submitted specimens. Other registries had been successful and were being constantly expanded at the Institute.

During the few years that the Registry has been in operation, it has done exceptionally well in the service it has rendered to the veterinary profession. It has helped many practitioners in diagnosing the lesions they have encountered. In large areas of the country, pathological laboratories are not available or are so overloaded with their own work that they can not handle submitted specimens.

Veterinarians should remember that this is not a routine diagnostic service. Nor is it a laboratory to which to send material if you expect a diagnosis by return mail. Rather, it is an institution for the collec-

tion and preservation of lesions, and particularly those of specific diseases. The time of the consultants is too valuable to examine tissues on which no observations can be made. The Registry is a depository where a collection of common and rare pathological lesions can be accumulated at a central point and not held in isolated laboratories or practitioners' offices throughout the country. No one man can gather many cases. When all contribute to a central Registry, studies may be conducted on a large number of similar cases. The knowledge gained will have a much greater chance of solving a given disease problem.

When submitting specimens, don't forget a complete case report. Tell all you know about the history, symptoms, lesions, and your diagnosis or opinions. The Registry has printed forms which outline the information desired. These forms may be obtained on request. The future value of the case depends on the work-up. The more information you send with the specimen, the greater will be its ultimate value. When all of this information is available, your case can be compared with others and both you and the profession will benefit. When a number of similar complete cases are studied, the disease picture and probable outcome can be accurately predicted.

### THE TEACHING VALUE OF THE REGISTRY

The teaching value of the Registry must not be overlooked. Already a number of veterinarians have spent weeks and even years at the Registry studying the submitted specimens. It is especially valuable to those who are working for an advanced degree. The AVMA realizes the teaching value of the institution and maintains a research fellowship at the Registry. Our veterinary colleges are confronted with ever broadening fields. Each year more diseases must be studied. The Registry serves as a reservoir of material from

which the various veterinary colleges may draw specimens for teaching purposes. It is difficult for an institution to locate all of the tissues required for a well-rounded course. The specimen you have on the shelf in your office may be the specimen needed by some teaching institution. It takes time to prepare and submit a specimen, but to make wanted information available is always worth-while. Without such effort there is no progress.

During the past years, it has been shown that collective study and research has solved many knotty problems. An excellent example is the development of atomic energy. Veterinary problems today are becoming increasingly difficult to solve. The easy ones have long since been understood. The Registry is a step forward in organized disease investigation. Do your part in bringing your case to light so that the story it tells will be available to the veterinary profession. Be "Registry of Veterinary Pathology conscious" and submit those interesting specimens.

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### Progress Toward a World Index of Medical Literature

For some time several groups of interested physicians, teachers and research workers have been endeavoring to develop an adequate index for the medical literature of the world, including both that of the basic medical sciences and of clinical medicine.

*Biological Abstracts* does an excellent job in indexing the literature of the basic medical sciences but unfortunately the material appears quite late and is not accessible to the majority of men in practice. *The Quarterly Cumulative Index Medicus* has been appearing irregularly; even by using a new technique it still appears late and is neither quarterly nor cumulative.

The *Current Medical List* recently undertaken by the Army Medical Library seems to be the most comprehensive index to medical literature. It appears monthly and is gradually expanding its scope. The *Current Medical List* does the indexing according to a different plan, including the listing of periodicals with titles, authors, and a separate subject index which appears with each number. Obviously, cumulation has not yet become a problem.

*Excerpta Medica*, published in English in Hol-

land, now is issued in 15 sections and will no doubt soon add another dealing with cancer. The 15 sections include basic medical sciences, research, and applied medical knowledge. Numbers appear monthly but the indexes are somewhat behind the publication of the material.

The ideal now being sought is a monthly index to the world medical literature which includes something over 3,000 periodicals, the index to be printed in a single alphabet with subjects and authors, the original reference to be in the original language with probably an English translation and with the adequate bibliographic reference. Moreover, plenty of cross references would insure the finding of appropriate material by those who utilize the book. The monthly index could be cumulated either semi-annually or annually. Recent conferences have indicated that considerable waste would ensue from attempting to index every article in every one of the 3,000 to 4,000 medical periodicals that are now available but a good index would always be somewhat selective. If in addition to the indexing of original articles in such publications there could be at the same time a reference to abstracts in *Excerpta Medica*, most of the medical literature of the world would become available through individual subscriptions and library subscriptions to far more physicians than now have easy access to such a service.

This type of index requires coöperation on the part of the American Medical Association, the Army Medical Library, and the board of *Excerpta Medica*. All of these ventures are conducted not for profit and in the interest of the advancement of medical science. Surely no reason seems to exist why complete coöperation should not be attempted.—*Morris Fishbein, M.D., in Postgraduate Medicine, August, 1951: 165-166.*

### Medal To Be Awarded in Memory of Dean Bryan

In memory of the late Dean C. S. Bryan's work in public health, the American Board of Veterinary Public Health has voted to award a medal annually to the senior veterinary student at Michigan State College who displays greatest interest in the public health aspects of veterinary medicine.

# CURRENT LITERATURE

## ABSTRACTS

### Histamine and Gastric Acid Secretion

During a survey of the stimulatory and inhibitory actions of chemical analogs of histamine on gastric secretion, one compound was found that possessed the unique property of stimulating gastric acid secretion without producing any of the other pharmacologic actions of histamine. The compound is 3-( $\beta$  ethylamine) pyrazole (compound XXIV).

Compound XXIV may prove useful for routine clinical testing for achlorhydria, not only because it would eliminate the undesirable side reactions that follow histamine, but also because it would be possible to produce stronger stimulation of acid secretion and thus provide more clear-cut results in borderline cases. It may also prove useful for the investigation of the maximal secretory capacity of the human stomach in health and disease.—

[C. E. Rosiere and M. I. Grossman: *An Analog of Histamine that Stimulates Gastric Acid Secretion Without Other Actions of Histamine*. *Science*, 113, (1951): 651.]

### Trace Element Supplements for Asparagine Brands

Certain brands of commercial asparagine have recently been found to fail to support adequate growth of tubercle bacilli. Supplementing medium prepared from these brands with trace quantities of various mineral elements—among which are: B, Ca, Co, Cu, Mn, Mo, Na, Ni, and Zn—allows the production of yields of dry weight of bacilli by Bureau of Animal Industry synthetic medium equal to those yields produced from brands of asparagine not found to be deficient.—[L. A. Baisden: *Trace Element Supplements for Asparagine Brands Found To Be Deficient for the Growth of Tubercle Bacilli*. *Am. J. Vet. Res.*, 12, (July, 1951): 254-256.]

### Changes in Chicken Serum During Development of Rous' Sarcoma

It is well known that during the growth and maturation of the individual, changes occur in the serum, manifested by an increase in globulin and by the appearance of various antibodies for cells of foreign species and multiple infectious agents. In the chicken, one finds antibodies against tumor viruses, e.g., the Rous' sarcoma, and also, as recently found in this laboratory, against *Proteus*, a bacterium that thrives in autolyzed extracts of this same sarcoma.

In studies on the immunochemical changes in the serum during malignancy, it was soon apparent

that in chickens bearing the Rous' sarcoma there was a diminution in some immune bodies.

With chickens bearing a rapidly developing Rous' sarcoma, we note a decline in serum globulin (i.e., euglobulin) which is manifested by the suppression of natural immune bodies as indicated by the reduction of *Proteus* agglutinin and the flocculating factor from tissue extracts.—[I. A. Parfentjev and F. Duran-Reynals: *Immunochemical Changes in Chicken Serum During Development of Rous' Sarcoma*. *Science*, 113, (1951): 690-691.]

### Bull Semen Treated with Dihydrostreptomycin Sulfate

Four ejaculates each collected at two-week intervals from 4 Holstein-Friesian and 4 Guernsey bulls used in the routine daily operation of an artificial breeding association were divided four ways, treated with four different concentrations of dihydrostreptomycin sulfate, and shipped to four different inseminator groups for use. Non-returns to first artificial service percentages were 61.4, 69.2, 76.5, and 72.0 for diluted semen containing 0, 100, 300, and 900  $\mu$ g. of streptomycin, respectively. The difference between levels of streptomycin as a group was statistically significant. Bacterial control increased with the increase in streptomycin concentration; however, fertility was highest at the 300  $\mu$ g. level. No correlation between fertility and specific organism isolated was observed.—[H. L. Easterbrooks, P. Heller, M. Lieberman, W. N. Plastringer, and E. L. Jungberr: *Fertility and Bacterial Content of Diluted Bull Semen Treated with Various Concentrations of Dihydrostreptomycin Sulfate*. *Am. J. Vet. Res.*, 12, (July, 1951): 191-193.]

### Listeriosis

A field outbreak of listeriosis in cattle is described in which diagnosis was established by isolation of *Listeria monocytogenes* and demonstration of specific agglutinins. Isolation of the agent was facilitated by holding the infected brain tissue under refrigeration for several weeks. The strain was pathogenic for mice, hamsters, guinea pigs, and rabbits, but chickens were resistant to infection. Mice developed marked monocytosis and succumbed after intraperitoneal infection; ocular instillation of culture produced ophthalmitis in rabbits and guinea pigs. The organism was thermal resistant remaining viable after ten minutes at 95 C. *In vitro*, the strain was very sensitive to aureomycin (0.04  $\mu$ g./ml.) and resistant to terramycin, penicillin, chloromycetin, and streptomycin.



Aureomycin in doses of 5 mg. per kilogram gave 100 per cent protection against experimental infections in mice; penicillin in doses of 10 mg. per kilogram was without effect.—[A. Zink, G. C. de Mello, and R. L. Burkhardt: *Listeriosis: Field and Laboratory Studies and Aureomycin Activity*. *Am. J. Vet. Res.*, 12, (1951): 194-198.]

#### Electrolytes in Body Fluids of Dairy Cattle

Water diuresis was induced in adult dairy cattle in late pregnancy and in midlactation. In both groups, the urine concentrations of magnesium and potassium were inversely proportional to the volume of urine, so that no change in absolute excretion of these elements occurred with diuresis. This relationship held whether the volume change was as low as threefold or as high as sevenfold. By contrast, the following elements were "washed out" by diuresis in both groups, the absolute excretion being proportional to the volume of urine: calcium, sodium, chloride, and total phosphate.—[A. F. Sellers and M. H. Roepke: *Studies of Electrolytes in Body Fluids of Dairy Cattle. I. Effects of Water Diuresis on Renal Excretion of Several Elements*. *Am. J. Vet. Res.*, 12, (1951): 183-186.]

#### Morphology of Turkey Spermatozoa

A study was made of the normal and abnormal morphological characteristics of the spermatozoa of the turkey (*Meleagris gallopavo*). The semen was collected from March to November from Broad Breasted Bronze, Beltsville Small White, and males resulting from crosses involving these two breeds. All the toms were kept outdoors without any stimulation from artificial light. In differentiating the various parts of the sperm, Ehrlich's hematoxylin was found to give better results than Heidenhain's iron hematoxylin. The morphology of a normal turkey sperm is similar to other avian types, being divided into four parts: acrosome, head, midpiece, and tail. Various types of abnormalities were noted of these parts and there appeared to be seasonal variations of these abnormalities.—[J. Walter Wakely and I. L. Kozin: *A Study of the Morphology of the Turkey Spermatozoa—with Special Reference to the Seasonal Prevalence of Abnormal Types*. *Am. J. Vet. Res.*, 12, (July, 1951): 240-245.]

#### Experimental Uremia in Young Pigs

Anuria and uremia were produced experimentally in 24 pigs, ranging in age from 3 to 82 days, by bilateral ligation of the ureters. The chief symptoms associated with these conditions were apathy, drowsiness, weakness, and coma. There was a pronounced increase in the concentrations of nonprotein nitrogen, urea nitrogen, uric acid, creatinine, and allantoin of the blood of affected pigs. Since the increase in uric acid was greater in younger than in older pigs, this may suggest the former may not be physiologically adapted to

convert uric acid to allantoin. When one ureter was obstructed, there were no marked changes in the nonprotein nitrogen fractions of the blood and there was no serious functional disturbance, even though the affected kidney was destroyed. In addition to biochemical data, a description is given of gross and microscopic changes in the kidneys associated with obstruction of the flow of urine through the ureters.—[Vera Hanawalt Grace, C. C. Morrill, Robert Butzow, Paul Hendren, and Jesse Sampson: *Studies on Baby Pig Mortality. VI. Experimental Uremia in Young Pigs*. *Am. J. Vet. Res.*, 12, (July, 1951): 206-214.]

#### Eructation in Sheep

It is possible to prevent eructation in sheep and thereby produce death by first overloading the rumen with water and then insufflating the organ with gases under pressures which, without the previous addition of water to the organ, would not be fatal.—[Roy E. Nichols: *A Note on Eructation in Sheep as Related to Rumen Fluid Level and Gas Insufflation*. *Am. J. Vet. Res.*, 12, (July, 1951): 199-200.]

#### Newcastle Disease and Poliomyelitis Viruses in Rhesus Monkeys

Hamster-adapted Newcastle disease virus produced Newcastle disease in monkeys inoculated intracerebrally. There was evidence of slight resistance against Newcastle disease virus in monkeys which had been injected previously with poliomyelitis virus, Burnhilde strain, but not in those vaccinated with the Lansing strain of poliomyelitis virus.—[Reginald L. Reagan, Mary G. Lillie, Dorothy M. Schenck, Leo J. Poelma, and A. L. Brueckner: *Studies of Newcastle Disease and Poliomyelitis Viruses in Rhesus Monkeys*. *Am. J. Vet. Res.*, 12, (July, 1951): 250-253.]

#### Ether-Killed Vaccine for Brucellosis

In a herd in which brucellosis had existed for about a year, 73 cattle negative to the agglutination test and in different stages of the reproductive cycle, were divided into three groups which were treated as follows: group A was injected with strain 19 vaccine; group B was injected with ether-killed *Brucella abortus* combined with falba and mineral oil; and group C was left as controls. Two heifers from each group were used in a challenge experiment.

No ill effects were noticed from injections of the saline-in-oil emulsion of ether-killed *Br. abortus* into cattle in different stages of gestation, while at least one case of abortion was attributable to vaccination with strain 19 vaccine beyond the fourth month of pregnancy. Thus, if the killed vaccine with adjuvant were found efficacious in producing resistance against brucellosis in cattle, it would constitute a valuable immunizing substance which could be used regardless of age or stage of pregnancy. Furthermore, such a



product could prove valuable in the revaccination of adult animals previously vaccinated as calves.—[I. Live and A. G. Danks: *The Use of Ether-Killed Brucella Abortus in Saline-in-Oil Emulsion in a Herd of Cattle with Brucellosis*. *Am. J. Vet. Res.*, 12, (July, 1951): 175-182.]

### Experimental Brucellosis in Dogs

Virulent *Brucella abortus* were harbored in one or more lymph nodes for as long as 151 days following a single meal of aborted bovine material. *Brucella* were recovered from the urine on two occasions and once from the feces shortly after the infected meal. A bacteremia was observed on 1 dog forty-eight hours after exposure. Indications are that this condition is rare in the dog. *Brucella* agglutinins were not demonstrable in the serums of all of the infected dogs. Two pregnant animals appeared to have aborted as a result of the single oral exposure. Two infected females whelped normal, healthy litters at term.—[Erskine V. Morse, T. Kowalczyk, and B. A. Beach: *The Bacteriologic Aspects of Experimental Brucellosis in Dogs Following Oral Exposure. I. Effects of Feeding Aborted Fetuses and Placentas to Adult Dogs*. *Am. J. Vet. Res.*, 12, (July, 1951): 219-223.]

### Effect of Cortisone on Acute Streptococcal Infections and Poststreptococcal Complications

It has been established that adrenal hormones play an important role in the defense reaction of the body to stress. A common stress stimulus in man is that produced by infection with group A streptococci. Streptococcal infections assume special importance because they precede acute rheumatic fever, a disease which responds favorably to treatment with the adrenal hormone, cortisone.

Eighty-seven treated and 87 control patients were studied to determine the effect of cortisone on the clinical and immunological response to streptococcal respiratory infections. Cortisone therapy, in the dosages employed, exerted no effect on the symptoms or physical signs of this infection. Patients who received cortisone exhibited fever longer than the control patients. Suppurative complications developed during the period of cortisone or saline injections in 1 of the treated patients and in 3 of the control subjects.

The increase in the antistreptolysin titer was somewhat less in the serums of the treated group than in the control patients one week after the onset of the infection; but at two, three, and four weeks, the formation of antibody was slightly greater in treated patients than in the control patients.—[Edward O. Hahn, Harold B. Houser, Charles H. Rammelkamp, Jr., Floyd W. Denny, and Lewis W. Wannamaker: *Effect of Cortisone on Acute Streptococcal Infections and Post-Streptococcal Complications*. *J. Clin. Invest.*, 30, (1951): 274-281.]

### Transmissible Gastroenteritis

Clinical and gross pathological findings based on the observation of 552 baby pigs experimentally infected with transmissible gastroenteritis, and of 15 naturally infected herds, are presented. Microscopic studies were made on the tissues from 20 artificially induced cases in 3- to 5-day-old pigs. On postmortem examination, there were found singly or in combination, gastritis, enteritis, degeneration of the kidneys, congestion of the mesenteric blood vessels, and an atony of the intestine with fluid contents. The microscopic changes were confined to the gastrointestinal tract and kidneys.—[W. W. Bay, L. P. Doyle, and L. M. Hutchings: *The Pathology and Symptomatology of Transmissible Gastroenteritis*. *Am. J. Vet. Res.*, 12, (July, 1951): 215-218.]

### Intravenous Injection of Drugs from a Distance in Conditional Reflex Studies

The study of higher nervous activity through the medium of conditional reflexes usually requires that the animal be isolated from both the experimenter and all irrelevant stimuli. Procedures requiring a series of injections of measured amounts of a drug have not been possible because of the lack of a satisfactory technique.

The authors describe a method for injecting acetylcholine into the superior sagittal cerebral venous sinus, in the isolated, unanesthetized dog. This technique has been modified by the use of plastic tubing inserted into the external jugular or radial vein.

In experiments in process, it has been possible to inject 0.2 and 0.4 ml. of a 1 per cent solution of acetylcholine chloride repeatedly without disturbing the dog. With each injection, there resulted a short period of inhibition of cardiac activity followed by compensatory acceleration of the heart rate.—[Harry A. Teitelbaum and W. Horsley Gantt: *A Method of Intravenous Injection of Drugs from a Distance in Conditional Reflex Studies*. *Science*, 113, (1951): 603-605.]

### Isolation of Salmonella from Feces of Domestic Animals

The importance of *Salmonella* organisms as causes of disease in man and animals is recognized. Most outbreaks of food poisoning in man caused by these organisms are thought to follow the consumption of food directly or indirectly associated with infection of animals. *Salmonella* infection among domestic animals is also of economic importance to the agricultural industry and is associated with serious disease problems, particularly among young animals.

In a survey of healthy adult domestic animals in England and Wales, 16 of 650 turkeys (2.5%), 2 of 100 geese (2.0%), 6 of 500 ducks (1.2%), 4 of 600 pigs (0.67%), 5 of 750 chickens (0.67%), 3 of 750 cows (0.4%), 1 of 500 horses (0.2%), and none of 500 sheep were found to be excreting *Salmonella* organisms in their feces.

No *Salmonella* were isolated from the feces of the following species of animals which were exhibited at national shows in this country: cows (430), chickens (420), ducks (155), and turkeys (63).

All the *Salmonella* types that were isolated in this survey, with the possible exception of *Salmonella pullorum*, are known to be capable of causing disease in man.

The significance of these findings is discussed with regard to the cause and prevention of food poisoning in man and the control of disease in animals.—[H. Williams Smith and A. Buxton: *Isolation of Salmonellae from Faeces of Domestic Animals*, *Brit. Med. J.*, (June 30, 1951): 1478-1483.]

#### Virus of Infectious Sinusitis of Turkeys

The virus of infectious sinusitis of turkeys was precipitated by methyl alcohol at -40 C. The precipitated virus was tested for infectivity by intranasal inoculation of tenfold dilutions. There was apparently nearly 100 per cent recovery of the organism in the resuspended precipitate. The supernatant material did not contain active virus as determined by animal inoculation.—[James E. Prier: *Concentration of the Virus of Infectious Sinusitis of Turkeys*, *Am. J. Vet. Res.*, 12, (July, 1951): 230-231.]

#### Chicken Embryos Infected with Agent from Sheep Lungs

A nonbacterial agent was isolated from pneumonic lungs of sheep and propagated in developing chicken embryos through 19 serial passages by means of chorioallantoic membrane inoculation. The predominant lesion produced was a pneumonia characterized by lymphocytic infiltration which was similar to that seen in the original lungs.—[A. M. Ramirez, M. L. Gray, and Frank Thorp, Jr.: *A Study of the Pathology of the Chicken Embryo Infected with a Transmissible Agent Isolated from Sheep Lungs*, *Am. J. Vet. Res.*, 12, (July, 1951): 201-205.]

#### Bovine Tuberculosis in India

The opinion has been expressed that Indian cattle are rarely victims of tuberculosis, if not relatively refractory, in comparison with the cattle of western countries. It is true, that, under average conditions, where Indian cattle are kept out of doors, little tuberculosis exists and the risk of spread through a herd is slight as compared with the cattle of western countries where conditions are particularly favorable for the dissemination of infection. That tuberculosis, however, is not infrequent among Indian cattle maintained under the relatively ideal system of an open air life and that it is a disease to be seriously reckoned with in housed and stall-fed cattle of the cities is a fact of increasing recognition and importance. Data concerning the incidence of tuberculosis in

cattle in urban areas reveal a disquieting position and, while mammary tuberculosis may not have assumed the proportion and the significance that it has in cows in western countries, the fact must not be overlooked that, apart from any disease of the udder, an infected cow may excrete tubercle bacilli in the milk.

The first experimental investigation on bovine tuberculosis in India was started in 1917 to obtain an explanation for the alleged rarity of the condition.

The experiments undertaken in this enquiry showed that, while some of the indigenous cattle displayed a high resistance to the organisms, others succumbed as quickly as European animals would have done under the same conditions, and it was found that indigenous breeds did not possess more resistance to the disease than animals possessing admixture of European blood. The organisms obtained from natural bovine lesions appeared to be as virulent as those in other countries.

The only agent for diagnosing this disease during life, before the manifestation of clinical symptoms, is tuberculin.

Among the proteins of the acid-fast bacilli, none has received as much study as that of human-type tubercle bacillus. The conclusion that this active substance is protein has been supported by comprehensive and convincing evidence. Recently, physico-chemical techniques have demonstrated that tuberculin proteins of various molecular sizes (8,000 to 32,000) are potent. Thus, the disagreement in the literature as to whether the active material is dialyzable has been due to the fact that different investigators were working with potent molecules of different sizes.

Although there is an international standard for tuberculin for human use, there is neither a national nor international standard for tuberculin for veterinary use. The standard for human tuberculin has been widely accepted but so far as veterinary tuberculin is concerned each laboratory appears to have its own method of standardization.—[B. N. Saboo: *Tuberculosis and Tuberculin with Special Reference to P.P.D. Tuberculin*, *The Indian Vet. J.*, 27, (1951): 319-331.]

#### Pathogenicity of *Brucella suis* for Cattle

Ten lactating dairy cows exposed to *Brucella suis*, by the intramammary introduction of living organisms, developed acute mastitis in the exposed quarters with the concurrent elimination of living *Br. suis* in the milk. Blood serum agglutination response in each case was indicative of acute infection with *Brucella*. *Brucella* was not recovered from the blood of these animals nor were abortions observed. Microscopic examination of affected mammary tissue revealed a progressive mastitis involving the parenchymatous tissue first and then the interstitial tissues. The affected quarters showed infiltrations of lymphocytes, polymorphonuclear, and eosinophilic cells into the alveoli and interstitial tissue, with des-

quamation of the alveolar epithelium and fibroblastic proliferations. At autopsy, *Br. suis* was recovered from mammary tissues and lymph nodes of 6 of 8 animals examined.—[F. V. Wasbko and L. M. Hutchings: *Studies on the Pathogenicity of Brucella Suis for Cattle*. II. *Am. J. Vet. Res.*, 12, (July, 1951): 165-174.]

### Aureomycin and *Brucella Suis*

This paper reports investigations on the effect of an aureomycin-fermentation product plus aureomycin and vitamin B<sub>12</sub> on experimental *Brucella suis* infection in swine.

This investigation should not be construed as providing a remedy for swine brucellosis. In the light of present knowledge, control in this species is still dependent on a unit system in which the infected unit, composed of reactors to the blood test and all others that have been exposed to infection, is disposed of by slaughter when a non-infected unit has been established as a replacement.

The only conclusion warranted from these trials is that aureomycin, in a vehicle of the aureomycin-fermentation product with vitamin B<sub>12</sub> added, was not toxic when fed in large amounts and apparently was bactericidal to *Br. suis* in swine.

An aureomycin-fermentation residue containing 100 Gm. of added aureomycin per 5 lb. of residue and 2.28 mg. of vitamin B<sub>12</sub> per gram of residue was fed to a group of 14 pigs experimentally infected with *Br. suis*. Ten similarly infected pigs were used as untreated controls. Treatment was continued for twenty-eight consecutive days, at the end of which period the pigs were autopsied and the organs cultured and inoculated into guinea pigs. Only 1 of the treated group was infected at autopsy. Of the untreated controls, only 2 were negative at that time. The results suggest that aureomycin at the foregoing level was bactericidal for *Br. suis*, *in vivo*.—[H. S. Cameron: *The Bactericidal Action in Vivo of Aureomycin in an Aureomycin-Fermentation Residue Against Brucella Suis*. *Cornell Vet.*, 41, (1951):110-114.]

## FOREIGN ABSTRACTS

### The Pathology of Newcastle Disease

The histological-pathological examination of Newcastle disease (avian pneumoencephalitis) in the Netherlands indicates that the disease is an encephalomyelitis with the usual ganglionic degeneration and subsequent polyneuropathy. Perivascular infiltration of lymphocytes and leucocytes does not occur. The vegetative nervous system and the endocrine glandular system appear to be involved. Neurotropism is also revealed by the degeneration of the vegetative nervous system which tends to lead to the decay of the glands with internal secretion. Bronchopneumonia is not often observed, and the lungs are only atelectatic with a solid structure without evidence of inflammation which can be attributed to respiratory

disturbance. The latter pertains to the respiratory center, the respiratory muscles, and is of nervous origin. The cardiac musculature *per se* do not degenerate, but there is evidence of monocyte infiltration. The endothelium of blood vessels may show a slight hyperplasia but this may have disappeared in some areas. There is arteritis without infiltration of the small cells.

Aside from the petechiae in the pars glandularis of the stomach and sometimes some hyperemia of the intestines, the digestive tract is normal without necrotic foci or defects in the epithelium. The spleen is always anemic and of a pale color but also free from necrosis or hemorrhages. The Malpighian corpuscles, atrophic in acute Newcastle disease, tend to become hypertrophic after immunization. In the pulp of the spleen, there occur clearly separated foci of cells consisting of dark cells larger than the young lymphocytes (monocytes or active cells of the reticular system?). These reactionary corpuscles occur particularly after infections and disappear in direct relation to the recovery of the Malpighian corpuscles. Therefore, they can not be identical with lymph follicles. The thyroid gland is atrophic, but the parathyroids remain normal and perhaps even become slightly hypertrophic. In the hypophysis, one observes a decrease in the number of chromophilic cells. The acidophils, especially, have lost their granulations and the basophilic gonadotrophic epithelium cells are vacuolized. The glandula suprarenalis have changed pathologically, vacuolizing, shriveling of the nuclei, breaking down of the cell structure, and a slight edematous condition. Because of the mutual relation between the glands with internal secretion, these degenerations are not to be considered a result of a direct influence of the virus, but as a secondary connection with the pathologic alterations of the vegetative nervous system.

The disturbances in the blood circulation of the liver and other visceral organs are explained by the insufficiency of the glandula suprarenalis. By this, an unlimited resorption of histamine from the intestines can occur because it can not be broken off. Histamine attacks the endothelium of the blood vessels through which capillary hemorrhages occur and some investigators have even found necrosis and defects of the epithelium. These visceral symptoms, as well as the pneumonic forms, have a nervous origin. It is thought that there are enterotropism and pneumotropism, as well as neurotropism, in Newcastle disease virus, but this is probably not correct. This opinion is not refuted by the fact that the virus can be isolated from the lung tissue and visceral organs.

The virus has been carried to these organs by means of liquids. It can live outside the cells for a long period, which is shown in virus culture in the allantois fluid of a chicken embryo. Only neurotropism exists in Newcastle disease virus. The reason that mainly the nervous and pneumonic form exists in the Netherlands, the United States, and England is that the endocrine and vegetative

nervous systems of the fowl constitute a barrier which prevents the creation of a visceral form.—[F. de Moulin: *The Pathology of Newcastle Disease*. Tijdschr. voor Diergeneesk. 76, (1951): 389-406.]—L.V.E.

### Toxic Liver Dystrophy in Swine

The author describes a toxic liver dystrophy among swine in Sweden which annually causes considerable losses, involving about 10 per cent of the pigs at the age of 1-4 months, especially during the fall and winter. The disease is usually marked by an acute or peracute course. As a general rule, the autopsy reveals a relatively good state of nutrition. The adipose tissues show a yellowish or grayish discoloration. Subcutaneous and intermuscular edema are commonly observed and in the serous cavities there is a moderate quantity of transudates. The appearance of the liver is characteristic. In the acute cases, this organ shows a friable consistency and a spotted coloration. This arises from the fact that in the central lobules there is manifest hyperemia or actual hemorrhage. The changes are never diffuse but present a focal character of varying intensity among the lobules. The gall bladder reveals a subserous edema, so that the wall of this organ may disclose a 1-cm. thickness. The portal lymph nodes, as well as other lymph nodes, have a marbled appearance. The gastrointestinal canal frequently appears normal, whereas in some cases there is a hyperemia and there are hemorrhages in the mucosa as well as a submucous edema. This pertains especially to the stomach and the large intestines.

Subepicardial and subendocardial hemorrhages are common and sometimes one may observe a waxy degeneration in the myocardium. In certain cases, the liver reveals focal fibrous cicatrix formations following parenchymatous damage. Histologically, the liver changes are characterized by their irregular appearance. Many lobules are intact, whereas, in others there is evidence of severe disturbances in the circulatory and parenchymatous tissues.

With reference to the cause of porcine liver dystrophy, there is no agreement among authors. Various factors are mentioned, such as hog cholera virus, enterogenic intoxications, fishmeal, excessive feeding of cod liver oil, and others. Regarding predisposing factors, one has to take into account the influence of nitrogenous feeds.—[A. Hjarre: *On Toxic Liver Dystrophy in Swine*. Tijdschr. voor Diergeneesk., 76, (1951): 409-414.]—L.V.E.

### Fowl Paralysis in Indonesia

For the first time, fowl paralysis (neurolymphomatosis gallinarum) was found to occur in Indonesia. The origin of the disease could not be established with certainty. However, after the war, breeding fowl were imported from Australia and the Netherlands and it is suspected that this was the source of the disease. Of a total num-

ber of 86 fowl, 37 chickens showed a progressive paralysis with a lethal termination. The autopsy of 8 birds revealed lymphomatous infiltrations of the nerves and viscera by which the diagnosis could be confirmed. Leukemic changes were observed in 3 cases attended or not by similar infiltrations in the nerves. The possible relations between neurolymphomatosis and leukemia remains as an unsolved problem.—[E. de Boer and R. Diaconoedin: *Fowl Paralysis in Indonesia*. Hemera Zoa, 58, (1951): 121-134.]—L.V.E.

### Various Strains of Canine Leptospirosis in Japan

Of 14 strains of *Leptospira* isolated from dogs, three were *Leptospira icterohemorrhagiae* and 11 were *Leptospira canicola*. Seven of the *canicola* strains were serologically alike, while four showed some antigenic differences. The virulence for guinea pigs of a *canicola* strain was greatly increased by serial passage through guinea pigs. The highly virulent strain had no antigenic changes. Studies are reported concerning the antigenic variation of various strains of *L. icterohemorrhagiae*, *L. canicola*, *Leptospira hebdomadis*, and *Leptospira grippityphosa*.—[Sintaro Yamamoto: *Über Leptospirosen der Hunde in Japan*. II. Zur Typenfrage der *Leptospirenstämme von Hunden in Japan*. Jap. J. Vet. Sci., 5, (1943): 42-44.]—A.G.K.

### Serum Proteins in Pigs

At birth, the serum protein concentration in pigs is less than one-third that of the sow. It increases rapidly during the first few days of life but does not reach the value for mature pigs till six months, which is approximately 1,100 mg. per 100 cc. of blood.

At birth, the euglobulin fraction is nil, but it increases rapidly after ingestion of colostrum. It becomes low again in three or four weeks and then rises to reach the normal value, 65 mg. per 100 cc. of blood, in five or six months. Pigs with pyroxidine deficiency had low euglobulin values.—[P. E. Jakobsen and Johannes Monstgaard: *Investigations of the Serum Proteins in Pigs from Birth to Maturity* (title trans.). Nord. Vet.-med., 2, (1950): 812-824.]—A.G.K.

### Foot-and-Mouth Disease Virus Preparations

Rat erythrocytes are agglutinated by the virus of foot-and-mouth disease. Attempts to devise a hemagglutination-inhibition test for the differentiation of O, A, and C immune sera resulted in failure because sera from normal, immune, and hyperimmune cattle were all equally inhibitory. Attempts to inactivate this nonspecific inhibition by treatment with rat cell suspensions, heat, oxidizing agents, adsorbents and ion-exchange agents were not successful.—[E. Michelsen and H. L. Bacbrack: *The Inability of Bovine Antisera to Specifically Inhibit the Hemagglutination Produced*



by Foot-and-Mouth Disease Virus Preparations (title trans.). Nord. Vet.-med., 2, (1950): 825-832.]—A.G.K.

### Prophylaxis of Fowlpox

A vaccine was prepared by collecting the crusts from lesions on the comb eight days after infection and shaking them with 1 per cent phenol solution. The material was then washed three or four times with saline solution and placed in a solution of 60 per cent glycerine and 0.5 per cent phenol. This was then diluted to 1:200 with 0.85 per cent saline solution. An inoculum of 0.5 cc. per kilogram, given subcutaneously over the breast muscle, caused no systemic reaction nor loss in egg production. In four weeks, immunity was fully established.—[S. Akawawa: Studies on the Prophylaxis of Fowlpox. Jap. J. Vet. Sci., 5, (1943): 157.]—A.G.K.

### Putrefaction of Chicken Eggs

Market eggs were found to have grayish albumen with gas bubbles and an odor of ammonia. A microorganism designated as *Achromobacter ammoniagenes* was recovered. The source may have been the offal of fish fed the chickens. The microorganism could penetrate the shell of washed eggs and produce the changes seen in spontaneous cases.—[R. W. Wiidik: Putrefaction of Chicken Eggs Caused by a New Species of *Achromobacter*—*Achromobacter Ammoniagenes* (title trans.). Nord. Vet.-med., 2, (1950): 789-811.]—A.G.K.

### Salmonellosis in Manchukuo

Forty-seven strains of *Salmonella* isolated from fowl in Manchukuo were found to be *Salmonella pullorum*. They could be divided into two types by fermentation reactions and by their susceptibility to a known bacteriophage.—[Takesi Nisi and Tutou Tukagosi: Studies on *Salmonella Pullorum*. I. Biological Characters and Classification of *Salmonella Pullorum* Isolated in Manchukuo. Jap. J. Vet. Sci., 5, (1943): 342.]—A.G.K.

### Botulism in Mink

In Sweden, type C *Clostridium botulinum* is the most common in mink. An aluminum hydroxide adsorbate vaccine has been prepared against it. The toxoid adsorbate proved to be effective in immunizing mice, guinea pigs, and mink against infections of toxin which were lethal for non-immunized animals.—[Z. Dinter, and K.-E. Kull: Active Immunization Against Botulism in Mink (title trans.). Nord. Vet.-med., 2, (1950): 906-915.]—A.G.K.

### Penicillin Content of Milk

Comparisons of the duration of penicillin in milk following the use of Na-penicillin in aqueous

solution, in peanut oil, Na-penicillin in paraffin oil containing aluminum-monostearate, and procaine penicillin in paraffin oil plus aluminum monostearate showed that the use of the Al-monostearate with paraffin oil maintained a therapeutically effective concentration of penicillin the longest. Procaine penicillin was no more useful than Na-penicillin in this respect.—[Henning Juncher, Iuger Magnusson, and Ole Romer: Measurements of Penicillin Content of Milk After Intramammary Infusion of Penicillin Preparations (title trans.). Nord. Vet.-med., 2, (1950): 765-788.]—A.G.K.

### Diabetes Mellitus in Cattle

The literature on diabetes in animals is reviewed. There is a detailed case report concerning the extensive studies on one case which was studied for six months. Originally, the animal was thin, weakened, and had hyperglycemia and glycosuria. Treatment with 100 units of insulin every other day resulted in marked improvement and gain in weight. The insulin requirement increased until a daily dose of 400 units was required. Subsequent histopathologic studies revealed degenerative changes in the islands of Langerhans with a decrease in their number and size.—[N. O. Christensen and P. Schambye: Diabetes Mellitus in Cattle. Clinical, Biochemical, and Pathological Studies of a Case in a Cow. (title trans.). Nord. Vet.-med., 2, (1950): 863-900.]—A.G.K.

### Diagnosis of Bovine Schistosomiasis by Rectal Biopsies

Experiments with accepted methods of diagnosing eggs of *Schistosoma japonicum* in cattle failed to yield entirely satisfactory results. Direct smears were also compared with the hatching technique and with rectal biopsies. The latter method yielded much more satisfactory results and is recommended for the diagnosis of schistosomiasis in cattle.—[S. Okoshi, S. Karasawa, Y. Hyuga, and H. Kubota: Research on Methods of Diagnosing Bovine Schistosomiasis by Means of Rectal Biopsies (title translated). Jap. J. of Vet. Sci., 12, (1950): 281-283.]—K.F.B.

### Diagnosis and Treatment of Equine Respiratory Diseases

The author limits himself in this article to the diagnosis of respiratory diseases of horses. Very little is offered in the line of treatment.

The relation between nasal conditions and those of the frontal and maxillary sinuses is brought up and attention is called to the diagnostic error of mistaking a chronic rhinitis for a frontal or maxillary sinusitis.

The following observations are of importance in the diagnosis of nasal conditions: (1) nasal discharge—unilateral or bilateral, frequency, odor; (2) nasal sound—intensity and frequency; (3)

ocular inspection of nasal passages; (4) palpation—pain, softness of bony wall; (5) percussion.

Differential diagnosis between those nasal conditions was outlined as follows: chronic rhinitis—continuous, mucopurulent, bilateral, foul smelling nasal discharge with increased nasal sound, sometimes signs of inflammation of nasal mucosa, widened interocular space, and negative exploration of paranasal sinuses; maxillary sinusitis—intermittent, sometimes unilateral, mucopurulent, foul smelling nasal discharge, unilateral nasal sound, swelling and pain on palpation of superior maxillary region, percussion sound dull; frontal sinusitis—nasal discharge as in previous condition, very weak or absent nasal sound, swelling and pain on pressure not constant on frontal region, percussion sounds dull, meningoencephalic excitement at first, depression later.

Several cases of tracheal stenosis possibly due to previous use of intratracheal injections are discussed, together with differential diagnosis between bronchitis, bronchopneumonia, pneumonia, and pleuritis.

An interesting observation made by the author, a professor at the Veterinary Faculty of Madrid, Spain, is that 72 per cent of the equine cases presented for treatment at the university clinics during 1950-1951 were respiratory diseases.—[José M. Santiago Luque: *Clinical Considerations on the Diagnosis and Treatment of Respiratory Diseases in Equines*. Veterinaria, (Spain) 15, (1951): 281-290.]—O.A.L.-P.

### Rabies in an Apparently Healthy Dog

An interesting description is offered of a positive case of rabies in an apparently sound dog that had bitten a child. No clinical picture of rabies was actually noticed and no Negri bodies were found in the brain smears from the dog; however, a rabbit and a dog experimentally infected died showing symptoms of rabies ten days after inoculation with material from the apparently sound dog's brain.

A second experimental inoculation with material from the laboratory animals was undertaken in a dog and 2 rabbits. These animals developed clinical symptoms of rabies. The dog died on the eighth day after inoculation; the rabbits died four days after inoculation.

Autopsies of all the animals experimentally inoculated did not demonstrate any lesions suggestive of other diseases. In the brain and meninges, a congestive state was detected. No findings of Negri bodies in these animals is mentioned by the author. He ascribes the short incubation period to the massive amount of brain emulsion injected and to the method of injection (intracerebrally).

Although the dog that bit the child was apparently sound, it can be classed as a carrier, in the saliva, of the rabies virus even though no Negri bodies were found in its brain, probably because the virus had not been in the body long

enough to produce the characteristic lesions.

The child that was bitten received antirabies treatment and did not develop the disease. [Pablo Miguel Cornejo: *Clinical History of a Rabid Dog Apparently Sound*. Rev. Gracilomb. Zootec., Higiene Med. Vet., (Ecuador) 4, (1950): 20-35.]—O.A.L.-P.

## BOOKS AND REPORTS

### Color Atlas of Morphologic Hematology

This is a very useful atlas and one that will lend itself as a guide to much work that is to be done in the field of veterinary medicine. The information contained in this little book should prove most useful, especially for research work into the blood picture of animals.

We can see a need for such a book dealing with every species that veterinarians handle and certainly work of this kind could be used as reference by small animal practitioners. The color plates are well done and accompanied by the clinical interpretation. This book will be a ready reference for the busy veterinarian who depends on laboratory aids to complete a diagnosis.—[Color Atlas of Morphologic Hematology (with a guide to clinical interpretation). By Geneva A. Daland. Edited by Thomas Hale Ham. Cloth. 74 pp. 9 colored illustrations. 12 tables. Harvard University Press, Cambridge, Mass. 1951. Price \$5.00.]—T. J. JONES.

### Successful Kennel Management

This book is recommended to those who desire information about boarding kennel construction and operation. Its contents are based upon knowledge the author has gained from more than twenty-five years' experience in raising, boarding, and handling dogs.

The book is divided into 19 chapters in which the author discusses all phases of kennel operation from providing quarters, through breeding, raising, boarding, showing, to selling dogs. The author has treated these subjects in a liberal, common sense manner. The chapter on kennel construction shows sketches of layouts for a limited number of boarding units which provide useful ideas.

Although the veterinarian will not agree with all of the author's conclusions and recommendations for handling disease control problems, there should be no hesitation in recommending this book as a reference to those who desire information regarding the boarding phase of canine service.—[Successful Kennel Management. By Mark Taynton. Cloth. 201 pages. McGraw-Hill Book Co., Inc., 330 West 42d St., New York 18, N.Y. 1951. Price \$4.00.]—W. H. RISER.

### Index of Treatment in Small Animal Practice

In this second edition much new material has been added in an attempt to bring the book up to present day methods. The contents are based on

the author's own practical experience in small animal practice. The book covers the entire field of practice as it pertains to the dog and cat.

Divided into three parts, part 1 explains the theory of therapies available to the small animal practitioner, part 2 covers the therapeutical application of drugs to certain ailments, and part 3 deals with the application of restraint, nursing, and treatment.

The American reader will find the text somewhat of a handicap in that many of the instruments, drugs, and vaccines are not in common use in this country. The discussion of the application of therapy deals with proprietary preparations used and distributed in England and these will be confusing to the American reader because he is unfamiliar with these preparations. The reference material quoted has also excluded American authors.

Regardless of these criticisms, the practitioner will find this book a useful addition to his library. The material contained in it is factual, precise, and informative enough to be of considerable use as a reference text. At present, it is by far the most informative and best illustrated text available on this subject.—[*Index of Treatment in Small Animal Practice*. By Hamilton Kirk. Second ed. Cloth. 826 pages. 176 illustrations. The Williams and Wilkins Company, Baltimore, Md. 1951. Price \$8.00.]—W. H. RISER.

### Medical Botany

The first three-fourths of this book deals with general botany and plant chemistry. The remaining portion is concerned with vegetable drugs, poisons, stimulants, and other plant products of pharmaceutical interest. Also, the higher plants as certain fungi, which cause animal diseases, and the identification of plants are discussed. The first portion of the book could easily be called "The Chemical Composition of Plants." The latter portion covers poisonous plants and their toxic principles.

The mineral and vitamin content of plants are briefly discussed in two chapters of this book. Later, considerable space is given to various products obtained from grains (wheat, corn, rye). In this section, the processed products are discussed with emphasis on the vitamin, protein, and mineral contents. There are chapters on plant structure, storage, processing, and cooking of foods.

In the portion of the book devoted to poisonous plants, the members of families Ranunculaceae and Solanaceae are discussed. Root drugs containing alkaloids and drugs derived from aerial vegetative shoots are given consideration. Remedies and drugs obtained from cryptogamic plants (ferns, fungi, etc.) and flowers, fruits, and seeds used in pharmacy are explained.—[*Medical Botany*. By Alexander Nelson. Cloth. 544 pages. Illustrated. E. & S. Livingstone, Ltd., 16 & 17 Teviot Place, Edinburgh, Scotland. 1951. Price \$6.50.]—M. J. SWENSON.

### REVIEW OF VETERINARY MEDICAL FILMS

*Functional Anatomy of the Reproductive Tract of the Cow*.—Sound, 16-mm., color; running time about forty-five minutes. Produced by the Visual Production Unit of Iowa State College in coöperation with Drs. Robert Getty and John B. Herrick. Copies are for sale for \$350 for the entire film or \$230 for the last twenty-five minutes; rental price, \$25. Recognized colleges of veterinary medicine may have the film for preview at no charge other than return postage. Future rentals to colleges will not be made. Requests for rental and purchase of the film should be sent to: Visual Production Unit, Iowa State College, Ames, Iowa.

The title of this film defines what it depicts, but does not indicate the comprehensive, detailed manner in which it is presented. The pictures and synchronized sound tract show and discuss in minute detail all of the anatomic structures and relationships, such as the musculature, innervation, blood supply, ligaments, and some of the histology of the various reproductive organs and related structures. The use of original drawings and motion pictures of the actual dissection tends to simplify the complex anatomic arrangements. In an effort to further simplify the teaching of the anatomy of the reproductive organs, the film shows the anatomic structures and relationships from several directions such as dorsal, medial, ventral-lateral, etc.

Approximately the first twenty minutes of the film deal entirely with the detailed anatomy and organ relationships. This portion of the film should be extremely helpful for teaching anatomy to first-year students in colleges of veterinary medicine. The latter portion (about 25 minutes which will be available as outlined above) deals more with the practical aspects of reproductive anatomy. Included are pictures of semen deposition as practiced in artificial insemination, the development and extirpation of corpora lutea, the changes occurring in the pregnant uteri, and detailed descriptions of the blood supply, ovaries, fallopian tubes, etc., are clearly shown by drawings, photomicrographs, and photographs of reproductive tracts which have been removed. Fetuses in various stages of development, including the placental membranes and their removal, are all clearly shown. There are other fine pictures, scenes, and drawings too numerous to mention in a brief review.

This latter portion of the film should be valuable for students studying bovine obstetrics and practitioners who have need for some review of the anatomy of the reproductive organs. (Who doesn't?)

Anatomy departments in schools of veterinary medicine should find this film a "must" for their teaching. Veterinarians whose practice includes bovine obstetrics and fertility problems will find the film extremely helpful.

# THE NEWS

## Atlantic City . . . Where AVMA-East Beats AVMA-West June 23-26, 1952

### Headquarters—Ambassador Hotel

Eastern veterinarians who will be hosts to the eighty-ninth annual AVMA meeting in Atlantic City, June 23-26, 1952, are gearing to break every record ever set for a veterinary meeting on either coast.

Nobody has yet come forth to predict that the 1951 Milwaukee attendance of 3,128 will be topped at Atlantic City, but there is good reason to expect a registration of 2,500. That would shatter the previous high of 2,111 for a "coast" meeting, set at San Francisco in 1948.

With all due respect for the outstanding success of the San Francisco event, some convention planners have issued a sporting challenge that Atlantic City will be the place "where AVMA-East beats AVMA-West"—and they are going to roll out the hospitality carpet full length in order to make their challenge a fact.

The scientific program is getting under way and again, as at Milwaukee, closed circuit television is planned for clinical and surgical demonstrations.

Hotel accommodations are excellent. The city is prepared to furnish an almost unlimited number of choice rooms in hotels on and off the Boardwalk. Rates are sensible and the range is wide. The Ambassador will be headquarters for sessions and exhibits. Hotel reservation information and blanks will be published in the JOURNAL starting with the December issue.

The social side of the convention will be colorful, matching the splendor of Atlantic City's famed Boardwalk, according to Dr. J. R. Porteus, of Trenton, N. J., chairman of the Committee on Local Arrangements.

A June meeting is almost unprecedented in



Looking east up the Boardwalk and sand-beach coastline of Atlantic City. The Ambassador Hotel (arrow) will be 1952 AVMA convention headquarters. The Boardwalk, running east and west, is one of the safest "streets" in the nation, because automobiles and other motor vehicles are not allowed on it at any time.



the Association's history, the only other having been the first annual session in 1863, notwithstanding that this is an ideal month for many veterinarians to attend a convention and combine it with an early summer vacation. June will not become standard, however, and previously was by-passed for AVMA meetings because of its popularity for state conventions. In order to give fullest support to the Atlantic City event, several associations and veterinary schools have informed the AVMA office that they either will schedule their usual June meetings and conferences so as not to conflict, or they will forego their full-scale meetings and hold short business sessions at Atlantic City in conjunction with the national convention. Also, public schools and colleges will have closed for the summer by that time, allowing veterinarians to bring their families.

Besides the attractions of Atlantic City itself, there will be opportunities for memorable sight-seeing trips along the eastern seaboard. Many veterinarians who will be taking their families to the East for the first time are planning to make stopovers in Philadelphia and New York City and travel to famous spots up and down the coast.

#### **Veterinarians Entertained by the Ralston Purina Company**

More than 100 veterinarians took advantage of the Ralston Purina Company's invitation to inspect on Sept. 11 and 12, 1951, as guests, the Purina research farm, Gray Summit, Mo., and the laboratories, St. Louis, Mo., and to hear several highly interesting, as well as informative, lectures. The veterinarians who attended were impressed with the outstanding livestock

and poultry production records achieved on the research farm, the extent to which laboratory analyses are utilized in the compounding and testing of feeds, and the generous hospitality of the company's personnel in charge of the tours and meetings.

Mr. J. D. Sykes, vice-president of the Ralston Purina Company, welcomed the guests; Mr. E. B. Powell, director of the research farm, described the farm's history, purpose, and scope, and also vividly presented the losses that occur due to animal disease and inadequate nutrition; Dr. R. M. Bethke, vice-president, discussed the advantages and limitations of antibiotics in nutrition; and Dr. R. E. Lubbenhusen, manager of the disease control laboratories, frankly discussed the relationship of practicing veterinarians to the feed industry.

The guest speakers were Dr. M. G. Fincher, New York State Veterinary College, who discussed a practical mastitis control program, and Dr. Glen W. Salisbury, University of Illinois, who gave an unusually comprehensive review of the management and nutritional factors influencing fertility of dairy animals.

The meetings and well-arranged tours, supervised by Mr. Otis O. McIntosh, director of public relations for the Company, revealed a great deal of practical nutritional information, and it was the unanimous opinion of the guests that a profitable day and a half had been spent.

#### **WOMEN'S AUXILIARY**

**House of Representatives.**—Because of a long-abiding belief that a stronger bond should exist between state auxiliaries and the Auxiliary to the AVMA, the House of Representatives



The women's luncheon held in the Crystal Ball Room of the Schroeder Hotel during the AVMA annual meeting in Milwaukee, Aug. 21, 1951.

was created. At the meeting in Boston in 1946, at the recommendation of the executive board, a motion was passed, in effect, to establish an affiliation between state auxiliaries and the Auxiliary to the AVMA; each state or province to elect or appoint a representative, to represent the Auxiliary to the AVMA at meetings of the state or province auxiliary and to represent the state or provincial auxiliary at the meetings of the Auxiliary to the AVMA; making reports, securing information, and otherwise acting as the agent of the two organizations.

During the following year, Mrs. A. E. Bott, of Illinois, then assistant secretary, contacted at least one member of the Auxiliary in each state or province. Through these contacts, 17 representatives met for the first time in Cincinnati, in 1947. This was an informal discussion group but both inspirational and informative. Mrs. J. L. Wells, of Missouri, was elected chairman, and Mrs. R. A. Hendershott, of New Jersey, secretary of state representatives. With plans to meet again the following year, the women were instructed to take the information, ideas, and enthusiasm of this group back to members of their state auxiliary. The state representatives met for the next two years as an informal group, exchanging ideas and discussing problems that arose within state and provincial auxiliaries.

With the adoption of the new constitution at the annual meeting in Detroit in 1949, the state representative group became the House of Representatives. This legislative body now conducts all business of the Auxiliary except that otherwise provided for in the constitution and by-laws. It has the final vote on all matters

presented to it by the executive board. All matters originating in the House of Representatives must be submitted to the executive board for consideration and returned to the House at the following meeting for final action. While the executive board continues to set the policy



Mrs. C. M. Rogers, chairman, presiding at the session of the Women's Auxiliary House of Representatives on Aug. 21, 1951.

of the Auxiliary, a democratic representation from each state carries on the business of the organization.

In its first official legislative meeting (Miami Beach, 1950), the House of Representatives was presided over by Mrs. C. C. Rife of Georgia, and Mrs. R. A. Runnells of Michigan acted as



The receiving line at the women's tea and reception in Milwaukee on Aug. 20, 1951.

Left to right—Mesdames C. A. Brandly, E. A. Woolfner, Dennis Coughlin, C. E. Bild, H. S. MacDonald, R. A. Runnells, L. R. Richardson, C. L. Miller, Charles C. Rife, Dr. Margaret Sloss, C. M. Rodgers, Alfred E. Coombs, V. A. Miller, Anthony E. Bott, Claud H. Reading, F. W. Mills, W. R. Winner, Glenn Downing.

recorder. This was a successful meeting with business of the Auxiliary ably transacted. Oral reports from delegates and junior auxiliary representatives created much interest.

In Milwaukee, Mrs. C. M. Rodgers, of Illinois, presided as chairman of the House of Representatives, with Mrs. A. E. Coombs, of Maine, acting as recorder. Reports from state, provincial, and regional groups were submitted in advance of the meeting. The chairman and recorder compiled previously submitted reports into a summary, and copies were distributed to each delegate to the House. This procedure eliminated oral reports and allowed time for the volume of business handled during the session.

The House concurred in all of the recommendations of the executive board, some of which were to send each member of the Auxiliary a condensed report of the annual meeting, including highlights of the House and Auxiliary business meetings, and to cooperate with the AVMA Research Fund Raising Committee. It voted to participate in the local news dissemination program of the AVMA and approved co-operation with the AVMA public relations program. It also approved several changes in procedure for its business.

The House of Representatives is truly a democratic representation of all members of the Auxiliary to the AVMA.

**Indiana, Sixth District Auxiliary.**—The Women's Auxiliary of the Sixth District (Ind.) Veterinary Medical Association were entertained in the home of Mrs. Harry Blair on September 12, 1951. Mrs. Ivan S. Meyers was co-hostess with Mrs. Blair.

**Michiana Auxiliary.**—The Women's Auxiliary to the Michiana Veterinary Medical Association met at the Oliver Hotel in South Bend on Sept. 13, 1951. After dinner, President Mrs. J. J. Fishler presided at the business meeting at which 18 members and 4 guests were present. Mrs. Ray Worley was in charge of the entertainment. A prize was awarded to the oldest member present and to the youngest. The evening was spent in playing bridge and canasta.

s/(Mrs. D. L.) HELEN W. MILLER, *Secretary*.

**New York State Auxiliary.**—The third annual meeting of the Women's Auxiliary to the New York State Veterinary Medical Society was held at the Mark Twain Hotel in Elmira on July 12, 1951. Following a luncheon, the president, Mrs. W. D. Way of Westport, called the business meeting to order. Mrs. F. F. Fehr, delegate to Miami Beach, reported on that meeting. At the 1950 meeting, it was voted to donate \$20 to a worthy senior student at New York State Veterinary College, but the fund was not used since no senior student made

application for it. At this meeting, it was decided that if this situation recurred, the fund, raised to \$25, would be available to a junior student.

New officers of the Auxiliary are Mrs. W. A. Hagan, Ithaca, president; Mrs. J. R. Hoyt, New Berlin, president-elect; Mrs. C. E. DeCamp, Scarsdale, secretary; and Mrs. Frederick Schutz, Brewster, treasurer.

s/MRS. C. E. DeCAMP, *Secretary*.

## U. S. GOVERNMENT

**Veterinary Personnel Changes.**—The following changes in the force of veterinarians in the U. S. Bureau of Animal Industry are reported as of Sept. 14, 1951.

### NEW APPOINTMENTS

Julius W. Amisjeu, Los Angeles, Calif.  
Margaret Denison (Miss), St. Paul, Minn.  
Jan Duszkiewicz, Columbus, Ohio.  
Rosa W. Gardner, Augusta, Maine.  
John E. Howard, Los Angeles, Calif.  
Nils O. Isachsen, Baltimore, Md.  
Clarence F. Manzano, Harrisburg, Pa.  
Peter J. Ostapchuk, St. Paul, Minn.  
Marvin M. Prentice, Olympia, Wash.  
Frederick J. Tacke, South St. Paul, Minn.

### PROMOTION

Eugene E. Hamann, Mexico City, Mex.

### MILITARY FURLOUGH

James R. Prince, Fort Worth, Texas.

### RESIGNATIONS

Eugene Adams, St. Louis, Mo.  
Francis D. Armstrong, St. Paul, Minn.  
Gerardo Arroyo, Indianapolis, Ind.  
Forrest E. Button, Jr., Albuquerque, N. M.  
Ben W. Clyatt, Fort Worth, Texas.  
Wesley W. Crenshaw, Kansas City, Mo.  
Robert F. Harrington, Chicago, Ill.  
Joseph S. Hull, Jr., Jefferson City, Mo.  
John F. Kandi, New York City.  
Bernard Lehman, Newark, N. Y.  
Thomas W. Lyles, Fort Worth, Texas.  
Mason L. Matthews, Jr., Mexico City, Mex.  
Simon Minsky, New York City.  
Elmer Pierce, Jacksonville, Fla.  
Warren Rednor, Newark, N. J.  
Carl W. Seeman, St. Paul, Minn.  
Clyde Slay, Jr., Jacksonville, Fla.

### SEPARATIONS

William T. Moseley, Jr., Mexico City, Mex.  
Fidel Mata Oriones, Mexico City, Mex.

### TRANSFERS

Chester N. Dale, from Beltsville, Md., to Amsterdam, Holland.  
Aaron Goldberg, from Beltsville, Md., to Chicago, Ill.  
Elmer L. Lashus, from Mexico City, Mex., to Madison, Wis.  
James B. Lavender, from Lincoln, Neb., to Los Angeles, Calif.  
Thomas M. Nunley, from Albuquerque, N. M., to San Antonio, Texas.  
Alfred O. Severson, from Mexico City, Mex., to Eau Claire, Wis.  
William J. Snodderly, from Spokane, Wash., to Omaha, Neb.  
Francis G. Vickers, from San Antonio, Texas, to Columbia, S. Car.

### RETIREMENTS

John R. Barnes, Kansas City, Kan.  
David H. Bibens, Kansas City, Kan.  
Joe H. Bux, Topeka, Kan.  
John A. Hailman, Boston, Mass.  
Clyde E. Smith, Albuquerque, N. M.

### TERMINATION

Leonard R. Twets, St. Paul, Minn.

## DEATHS

Samuel B. Foster, Portland, Ore.  
Herbert B. Nixon, Raleigh, N. Car.

## APPLICATIONS

The listing of applicants conforms to the requirements of the Administrative By-Laws—Article X.

## First Listing

BERNAS, HERMINIO A.  
1823 1/8 W. Third St., Los Angeles 5, Calif.  
D.V.M., San Francisco Veterinary College, 1918.  
Voucher: Charles S. Travers.

BOWERS, DON RAYMOND  
P.O. Box 162, West Palm Beach, Fla.  
D.V.M., Kansas State College, 1943.  
Voucher: L. T. Hopkins.

COLLINS, CHARLES G.  
1809 Priddy St., Bloomer, Wis.  
D.V.M., Michigan State College, 1942.  
Voucher: B. A. Beach.

ELY, GEORGE L.  
Box 291, Gallipolis, Ohio.  
D.V.M., Ohio State University, 1949.  
Voucher: F. J. Kingma.

FLEMING, JOHN B.  
209 East Fourth St., Marshfield, Wis.  
D.V.M., Ohio State University, 1935.  
Voucher: B. A. Beach.

FOX, HENRY P.  
P.O. Box 10, Conquest, Sask.  
M.R.C.V.S., Royal College of Veterinary Surgeons, 1922.  
Voucher: A. Chambers.

GOLDSBORO, ROBERT F.  
3650 Medical Group Sampson Air Force Base, N.Y.  
D.V.M., Tuskegee Institute, 1951.  
Vouchers: T. M. Goldhaft and N. E. Wernicoff.

HARDENBROOK, HARRY, JR.  
106 North Russell St., Champaign, Ill.  
D.V.M., Colorado A. & M. College, 1940.  
Voucher: A. G. Misener.

HARDING, ALBA EARL  
603 1/2 Genesee Ave., Morrison, Ill.  
B.V.Sc., Ontario Veterinary College, 1916.  
Voucher: A. G. Misener.

HEATH, SAMUEL P.  
22447 Edison St., Dearborn, Mich.  
D.V.M., Grand Rapids Veterinary College, 1918.  
Voucher: Glen W. Reed.

LEE, C. L.  
Iola, Wis.  
D.V.M., Chicago Veterinary College, 1918.  
Voucher: B. A. Beach.

MICHAUD, LAURENT  
Merck & Co., Inc., Rahway, N. J.  
D.M.V., Quebec Veterinary Medical School, 1936.  
Voucher: P. Villeneuve.

NEWMAN, LLOYD V.  
3723 Douglas Ave., Racine, Wis.  
D.V.M., Kansas City Veterinary College, 1912.  
Voucher: B. A. Beach.

PRICE, LAWRENCE W.  
516 E. Main, Napoleon, Ohio.  
D.V.M., Ohio State University, 1941.  
Voucher: F. J. Kingma.

STOCK, ERSKIN H.  
Shelby, Iowa  
D.V.M., Iowa State College, 1946.  
Voucher: F. B. Young.

WILLIAMS, ZENAS L.  
Manitowoc County, Cleveland, Wis.  
D.V.M., McKillip Veterinary College, 1916.  
Voucher: B. A. Beach.

VELD, EDWARD  
165th & Vincennes Road, South Holland, Ill.  
M.D.C., Chicago Veterinary College, 1910.  
Voucher: A. G. Misener.

## Second Listing

BITTEL, ROBERT E., Star Rt., Hudson, Ohio.  
BOWMAN, BERNARD, West Park St., Lebanon, Ohio.

BUEHLER, H. J., 520 Flamingo Drive, West Palm Beach, Fla.

COMSTOCK, WARREN JOHN, Knight Hill Road, Clayville, R. I.

EASH, ALDEN T., Greensboro, Md.

GINGRICH, S. W., Baraga, Mich.

HENAGAN, J. W., 405 S. Howard Ave., Tampa, Fla.

HOPKINS, JOHN HENRY, Rt. 6, Middleburg Pike, Hagerstown, Md.

IVIE, R. A., Follett, Texas.

KENNEDY, ARNOLD H., Ontario Veterinary College, Guelph, Ont.

LATTIMER, BERNARD J., Springfield, Minn.

LEADBITTER, WAYNE A., 2350 South Dahlia, Denver, Colo.

LUKAS, GUS N., 2443 K. Street, Eureka, Calif.

KELM, GEO. W., Hales Corners, Wis.

MALLET, ROLAND C., Box 322, Rt. 4, Dallas, Texas.

METZGER, ROBERT W., Rt. 1, Constantia, N. Y.

MOSEY, ORRIN Q., Reinbeck, Iowa.

PERKINS, CHESTER A., 402 Third St., W. DePere, Wis.

PETER, ARNOLD E., Mercedes, Texas.

PRIMISING, CHARLES J., Melvin, Iowa.

RAMSTEIN, RICHARD K., Bourbon, Mo.

RODE, W. F., 425 Exchange Bldg., So. St. Paul, Minn.

SMIT, CHARLES R., Wabasha, Minn.

STUEBER, LAWRENCE J., Prairie Du Sac, Sauk Co., Wis.

TUCKER, CARL CONRAD, 618 35th St., N.E., Cedar Rapids, Iowa.

WEINBERGER, ROBERT, 4107 Herschel, Dallas, Texas.



### 1951 Graduate Applicants Second Listing

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. An asterisk (\*) after the name of a school indicates that all of this year's graduates have made application for membership.

#### Iowa State College

DAUGHERTY, CHARLES J., D.V.M., 543 Forest Glen, Ames, Iowa.  
KELLEY, DALE E., D.V.M., Box 217, Early, Iowa.  
SEARL, RICHARD C., D.V.M., Farragut, Iowa.

#### Michigan State College\*

BRODIE, BRUCE O., D.V.M., Maple Plain, Minn.

#### Texas A. & M. College

PARKHILL, KENNETH R., D.V.M., Box 742, Livingston, Texas.

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## AMONG THE STATES AND PROVINCES

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### Alberta

**Brucellosis and Calfhood Vaccination.**—The herd involved in this report is that owned by the University of Alberta, Edmonton. It consists of a dairy herd and a beef herd comprised of Holstein-Friesians, Jerseys, Herefords, Shorthorns, Aberdeen Angus, and a few dual purpose Shorthorns.

As yet, routine vaccination has failed to result in a brucellosis-free herd. It would appear that, to realize such an aim, a number of infected animals would have to be eliminated. If the program is continued, however, it is possible that eventually all the infected animals will have been removed and no new infections occur. Vaccination has reduced calf losses and has drastically reduced the number of infected animals in the herd. To date, 87.2 per cent of the vaccinated animals have remained free of the disease. Only 8.7 per cent of the vaccinated animals have failed to lose vaccination blood titres within twenty-two months of vaccination. —*Canad. J. Comp. Med. and Vet. Sci., July, 1951, pp. 161-168.*

### Arizona

**Pima County Association.**—On Sept. 19, 1951, the Pima County Veterinary Medical Association met in Tucson at the Club Morocco. The meeting was arranged and called by the chairman, Dr. J. B. McQuown. All practicing veterinarians in the county were present and heard a finance company representative discuss a collection plan adaptable to veterinarians.

S/R. W. ADAMI, Resident Secretary.

### Colorado

**Milk and Food Sanitarians.**—The thirty-eighth annual convention of the International Association of Milk and Food Sanitarians, Inc., was held in the Hotel Colorado, Glenwood Springs, on Sept. 26-29, 1951. The program featured breakfast meetings, a breakdown of material into a food section and a milk section, and several field trips. Papers were presented during morning sessions, the afternoons were devoted to committee meetings and joint sessions for discussion purposes, and field trips and entertainment were planned for each evening.

Entertainment included fishing, golfing, swimming, hiking, and sightseeing.

### Florida

**Captain Reed Returns from Korea.**—Capt. E. L. Reed, Jr. (API '43), son of Dr. E. L. Reed, Pensacola, returned to his home after fourteen months of combat in Korea. Captain Reed, who has recently been assigned to the inactive reserve, will reside in Pensacola with his wife and two sons, and will resume his duties as a veterinarian.

S/E. M. NIGHBERT.

### Illinois

**Northern Association.**—The fall meeting of the Northern Illinois Veterinary Medical Association was held in the Hotel Faust, Rockford, on Sept. 19, 1951. The following speakers comprised the program: Drs. C. R. Collins, Dixon, president of the Illinois State Veterinary Medical Association; Frank Thorp, Michigan State College, East Lansing; Harlan E. Jensen, Cleveland, Ohio; H. H. Thompson, Springfield, state veterinarian; J. R. Curtis, Portage, Wis.; W. S. Gochenour, Pitman-Moore Laboratories, Indianapolis, Ind.; and Harry E. Pinkerton, Fort Dodge Laboratories, Fort Dodge, Iowa.

S/D. R. STEPHENSON, Secretary.

### Indiana

**Short Course.**—The thirty-ninth annual short course for Indiana veterinarians was held at Purdue University, Lafayette, on Oct. 3-5, 1951. The program was an outstanding success, bringing to those in attendance the latest advances in the field and laboratory.

Among the outstanding features of the program were a panel discussion on animal and poultry nutrition moderated by Dr. W. M. Beeson, of the University; discussion of hog cholera vaccines by Drs. R. K. Jones (Purdue), James A. Baker (New York State Veterinary College), and C. C. Hastings (Williamsville, Ill.); latest information on cattle diseases by Dr. George R. Moore, School of Veterinary Medicine, Michigan State College, East Lansing; and up-to-date results of research on antibiotic agents by Dr. M. A. Schooley, Armour and Co., Chicago.

Other outstanding papers of the program included one on surgery by **Dr. D. D. Delahanty** of the Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins; one on sheep and horse diseases by **Dr. F. E. Hull**, University of Kentucky, Lexington; observations on turkey and poultry diseases in Indiana, **Dr. H. E. Moses**, Purdue University; and **W. R. Krill**, AVMA Executive Board Member from District X, and chairman of the AVMA Emergency Advisory Committee, discussed the civil defense responsibilities of veterinarians.

Moderators of the large animal clinic were **Drs. R. Leland West**, Waseca, Minn., and **Drs. Delahanty and Moore**. **Drs. Hastings and Baker** were moderators of the swine clinic, and **Dr. Hull** of the sheep and poultry clinic.

s/L. M. HUTCHINGS, head,  
Department of Veterinary Science.

**Indiana-Illinois Association.**—On Sept. 21, 1951, members of the Indiana-Illinois Veterinary Medical Association met in Bruceville, Ind., at the Rod and Gun Club to hear **Dr. Harvey Page** of Washington, Ind., tell of the importance of veterinarians cooperating in the brucellosis and tuberculosis testing programs. **Mr. Sassie** of Pfizer and Co., spoke on terramycin. New officers of the Association are **Drs. E. K. LeDune**, Sullivan, president; and **Paul Wallace**, Cynthia, secretary-treasurer.

The women brought plenty of fried chicken, with all the trimmings. The meeting place was made available by **Dr. J. E. Carrico**, Bicknell, a member of the Club.

s/J. L. KIXMILLER, Resident Secretary.

**Michiana Association.**—The Michiana Veterinary Medical Association met in the Hotel Oliver, South Bend, on Sept. 13, 1951. **Dr. L. M. Hutchings**, Purdue University, spoke on diseases of swine and reminded those in attendance that testing of cattle for brucellosis and tuberculosis requires their cooperation. Officers of the Association are **Drs. Roy Wescott**, Constantine, Mich., president; and **A. J. Winters**, Benton Harbor, Mich., secretary-treasurer.

s/J. L. KIXMILLER, Resident Secretary.

**Northeastern Association.**—The Northeastern Indiana Veterinary Medical Association met in Fort Wayne on Sept. 18, 1951, to hear **Dr. T. K. Jones** discuss the importance of testing cattle for tuberculosis. Officers of the Association are **Drs. R. E. Allison**, Decatur, president; and **Clark Waterfall**, Columbia City, secretary-treasurer.

s/J. L. KIXMILLER, Resident Secretary.

**Sixth District.**—Members of the Sixth District (Ind.) Veterinary Medical Association met in Brownsburg on Sept. 12, 1951. **Drs. Ed. Penticost** and **Henry Craige** were guest speakers.

Officers of the Association are **Drs. Ivan S. Meyers**, Brownsburg, president; and **R. G. Hardin**, Lebanon, secretary-treasurer.

s/J. L. KIXMILLER, Resident Secretary.

**Tenth District Association.**—The Tenth District (Ind.) Veterinary Medical Association met at the Indianapolis Gun Club on Sept. 20, 1951. **Dr. George R. Burch**, Zionsville, discussed recent developments in veterinary practice. **Col. Harold Decker**, formerly of Richmond, spoke on life in the Army. Officers of the Association are **Drs. W. E. Welbourn**, Winchester, president; and **John Templeton**, McCordsville, secretary-treasurer.

s/J. L. KIXMILLER, Resident Secretary.

**Human Rabies.**—The Indiana commissioner of health has reported the first case of human rabies in Indiana in 1951. The victim was an 18-year-old girl who resided in Henry County. She was bitten in April and died of rabies in July. There have been 8 laboratory-confirmed cases of animal rabies in Henry County since January 1.—*Pub. Health Rep., August 10, 1951, p. 1041.*

**Death of Mrs. R. H. Strous.**—Mrs. Ynez Strous, 48, wife of **Dr. R. H. Strous** of Wolcott was killed instantly in an auto accident in September, 1951. She was interred in Santa Barbara, Calif. **Dr. Strous** was injured seriously in the same accident.

## Iowa

**Nutrition Conference.**—Approximately 200 veterinarians and feed dealers attended the second annual Nutrition Conference for Veterinarians held at Iowa State College, Ames, on Sept. 13, 1951. The Feed Institute, Western Grain and Feed Association, and the Iowa Veterinary Medical Association were again the sponsors of the conference. The genuine interest of veterinarians in animal nutrition was manifested by the constant presence in the meeting of all who registered and the questions from the floor during the final session of the meeting.

Presiding were **Mr. Charles Barr**, president of the Feed Institute, and **Dr. C. D. Lee**, president of the Iowa Veterinary Medical Association. **Dr. H. D. Bergman**, dean of the Division of Veterinary Medicine, Iowa State College, and **Dean Floyd Andre** of the Division of Agriculture welcomed those in attendance and discussed briefly the vital relation of nutrition to animal health and production. Other speakers were: **Drs. C. D. Van Houweling**, assistant executive secretary of the American Veterinary Medical Association; **Laurence E. Carpenter**, associate professor, Hormel Institute, University of Minnesota; **Eugene B. Ingmand**, Red Oak, Iowa; **E. W. Burroughs**, associate professor of animal husbandry, Iowa State College;

**B. B. McHan**, vice-president in charge of research, Calcium Carbonate Company; and **Damon Catron**, associate professor of research, Department of Animal Husbandry, Iowa State College, who served as moderator of the question and answer period.

An interesting sidelight was the number of veterinarians and feed dealers who came to the conference together. Such acquaintanceships will naturally result in improved relations.

s/C. D. LEE.

• • •  
**Coon Valley Association.**—Officers of the Coon Valley Veterinary Association are Drs. R. C. Kleaveland, Sioux Rapids, president; Mark Wilson, Rockwell City, vice-president; and V. D. Ladwig, Sac City, secretary. The Association meets the second Wednesday of each month, September through May, at the Bradford Hotel in Storm Lake.

s/V. D. LADWIG, *Secretary*.

### Kentucky

**Anthrax.**—An epizootic of anthrax is occurring in the extreme southwestern part of Kentucky and in northwestern Tennessee. Animals are being vaccinated. Anthrax was reported in animals in part of this area in 1947. Thus far, no human cases have been reported.—*Pub. Health Rep.*, August 10, 1951, p. 1040.

### Maryland

**Southern Association.**—The Southern Veterinary Medical Association held its annual meeting in the Lord Baltimore Hotel in Baltimore on Oct. 22-24, 1951. The program, outstanding in quality of speakers and material, was organized to present the latest facts on all phases of progress in the profession. In addition to individual papers presented, there were symposiums on brucellosis, leptospirosis, and internal parasites of cattle.

The outstanding group of speakers, all authorities in their fields, included Drs. M. G. Fincher and J. A. Baker of Cornell; J. Farquharson of Colorado A. & M. College; M. W. Allam, M. J. Deubler, and J. Jenney of Pennsylvania; L. E. Swanson and J. E. Scatterday of Florida; G. Dikmans and C. A. Manthei of the U. S. BAI; W. T. S. Thorp, Bethesda, Md.; Major Gochenour of the Army; A. L. Breuckner and Major W. L. Wallenstein of the University of Maryland; Ron Woods of Johns Hopkins; and others, all well qualified in their respective fields.

President John R. Wells came from Florida to address this meeting on AVMA activities.

s/JOHN D. GADD, *Local Chairman*.

### Massachusetts

**State Association.**—The regular monthly meeting of the Massachusetts Veterinary Association

was held Sept. 19, 1951, at the Highland Hotel in Springfield. After dinner and the business session, Dr. H. D. Branion, head, Department of Nutrition, Ontario Agricultural College, Guelph, discussed "Nutrition New and Old."

s/C. LAWRENCE BLAKELY, *Secretary*.

### Minnesota

**Southern Minnesota Society.**—The Southern Minnesota Veterinary Medical Society met in Austin on Sept. 14, 1951. A symposium on attenuated viral vaccines for hog cholera was presented by Drs. N. H. Casselberry, Berkeley, Calif.; A. H. Killinger and H. E. Pinkerton, Fort Dodge, Iowa; and H. Koprowski and M. Harvey, Pearl River, N. Y.

Officers elected were Drs. W. H. Calhoun, Riceville, Iowa, president; A. H. Magnusson, Blooming Prairie, vice-president; and George A. Young, Jr., Austin, secretary-treasurer. The following were elected to the Board of Directors: Drs. J. L. Cavanaugh, Plainview, and R. B. Helming, Cresco, Iowa.

The next meeting of the Society will be held in Austin in May, 1952.

s/GEORGE A. YOUNG, JR., *Secretary*.

### Missouri

**Kansas City Association.**—At the Sept. 18, 1951, meeting of the Kansas City Veterinary Medical Association, Dr. Marvin L. Twiehaus, Department of Pathology, Kansas State College, discussed the latest developments in some new disease problems, including soybean oil meal poisoning (with illustrations), atrophic rhinitis (with illustrations), hyperkeratosis, and warfarin poisoning in dogs.

s/K. M. CURTS, *Secretary*.

### New Jersey

**Death of Mrs. John H. McNeil.**—Mrs. Lucile Zink McNeil, widow of the late Dr. John H. McNeil, who was chief of the state Bureau of Animal Industry from 1918 to 1936, died on Sept. 13, 1951, at Sterling, Neb., where she had gone a few days earlier for the funeral of her brother. Mrs. McNeil was interred at Keokuk, Iowa, where her husband is buried.

### North Carolina

**Central Carolina Association.**—The Central Carolina Veterinary Medical Association met in Greensboro on Sept. 12, 1951, with 42 veterinarians and wives in attendance. Dr. Martin Hines, chief of the newly organized Veterinary Public Health Section of the State Board of Health, spoke to the group concerning his duties and of the program for the new Section.

s/CLYDE W. YOUNG, *Secretary*.

• • •  
**Dr. Hines Appointed Head of Public Health**

**Section.**—Dr. Martin Hines (OSU '45) has been appointed chief of the newly organized Veterinary Public Health Section of the North Carolina State Board of Health.

After receiving his D.V.M. degree, Dr. Hines spent one year in private practice and two years in the Army. In 1949, he completed work for his M.P.H. degree at Harvard University. For the past two years, Dr. Hines has taught bacteriology and veterinary public health at the University of Georgia School of Veterinary Medicine.

s/Clyde W. Young, *Secretary*.

## Ohio

**Death of Dr. and Mrs. B. H. Gibson.**—Dr. Bernard H. Gibson and his wife, *née* Kathryn Fisher, of London, Ohio, drowned Sept. 18, 1951, while on a fishing trip to Canada. The owner of the lodge at which they were staying also died in the tragedy. Dr. and Mrs. Gibson are survived by three small daughters.

## Ontario

**India-Pakistan Visitors to Agricultural and Veterinary Colleges.**—On Aug. 22, 1951, the following members of the India-Pakistan Agricultural Mission visited the Ontario agricultural and veterinary colleges: Dr. S. Hedayetullah, director of agriculture for the State of East Bengal, Pakistan; M. Kanti Raj, deputy director of agriculture for the State of Madras, India; A. M. Sial, minister of agriculture and education, Khairpur State, Pakistan; Dr. K. A. Rahman, director of agriculture for the Punjab



—Dept. of Public Relations,  
Ontario Agricultural College

Left to right—Dr. S. Hedayetullah, M. Kanti Raj, A. M. Sial, Dr. J. A. Henderson, head of the Division of Clinical Medicine, Ontario Veterinary College, Guelph; Dr. K. A. Rahman, and Dr. J. K. Dubey.

Province, West Pakistan, and dean of the University of the Punjab, Pakistan; and Dr. J. K. Dubey, director of agriculture for the State of Bhopal, India.

s/T. L. Jones, *Resident Secretary*.

## Pennsylvania

**State Association.**—The sixty-ninth annual

convention of the Pennsylvania State Veterinary Medical Association was held at the Bedford Springs Hotel, Bedford, on Oct. 10-12, 1951.

Speakers on the program included **Drs. E. B. Powell**, Ralston Purina Co., St. Louis, Mo.; **James A. Baker**, New York State Veterinary College, Cornell University, Ithaca; **Ellis P. Leonard**, New York State Veterinary College; **C. J. Hollister**, Montrose, Pa.; **A. H. Quin**, Jensen-Salsbery Laboratories, Kansas City, Mo.; **W. F. Riley**, Michigan State College, East Lansing; **James T. O'Connor**, University of Pennsylvania, Philadelphia; **W. T. S. Thorp**, National Institutes of Health, Bethesda, Md.; **J. H. Brown**, Marietta; and **Alfred Kissaleff**, Flourtown.

The following speakers presented a panel on helpful hints to the small practitioner: **Drs. Alan Bachrach**, Philadelphia, moderator; **William F. Hoffman**, Pittsburgh; **G. Robert Becker**, York; **Earle S. Pickup**, Union City; **William C. Glenney**, Ardmore; and **Robert G. Little**, Williamsport.

**Dr. William F. Riley, Jr.**, School of Veterinary Medicine, Michigan State College, presented a paper on "Current Problems in Dairy Cattle" in memorandum to the late Dr. C. S. Bryan, dean of the School from 1947 to 1951.

s/RAYMOND C. SNYDER, *Secretary*.

• • •

**Bucks-Montgomery Association.**—Dr. J. W. Walker, Southampton, planned the program for the Sept. 12, 1951, meeting of the Bucks-Montgomery Veterinary Medical Association.

s/V. W. RUTH, *Secretary*.

• • •

**Omega Tau Sigma Fraternity.**—The Grand Council of Omega Tau Sigma Fraternity met at the University of Pennsylvania, School of Veterinary Medicine, Oct. 19, 1951. Dr. J. T. Burriss, president of the Columbus Serum Company, Columbus, Ohio, presided at the meeting.

s/DEAN S. FOLSE, *Secretary*.

## West Virginia

**Personal.**—Dr. T. C. Green (IND '11), veterinarian in charge of the West Virginia Department of Agriculture, was confined to a hospital, W. Va., for several months with a fractured vertebra.

s/H. E. HERSHEY, *Resident Secretary*.

## Wisconsin

**State Association.**—The Wisconsin Veterinary Medical Association held a business meeting in the Schroeder Hotel at Milwaukee on Aug. 19, 1951. An executive board, consisting of officers of the state Association and one member from each of seven sectional associations, was organized as an administrative body of the Association.



Officers elected at this meeting are Drs. J. T. Schwab, Madison, president; R. O. Anderson, Elkhorn, vice-president; B. A. Beach, Madison, secretary; W. L. Richards, Morrisonville, treasurer. Mrs. Hazel Hoven was hired as a full-time assistant to the secretary.

S/J. T. SCHWAB, Resident Secretary.

## FOREIGN NEWS

### Sweden

**Epizootic Enteritis in Cattle.**—In 1946 to 1948, an acute contagious enteritis in cattle occurred in Sweden with diarrhea and decreased milk yield as the predominant symptoms. This disease is possibly related to the enteritis described by Olafson (United States).

In typical cases, the first symptoms were a rise in temperature (1 or 2 degrees C.) accompanied by dullness, decreased appetite and, sometimes, a moist cough, mild secretions from eyes and nostrils, and salivation. Then a severe diarrhea suddenly appeared which after a few days contained blood clots. The appetite disappeared and milk secretion decreased radically or ceased completely. Sometimes a dry cough, weakness, atony of the forestomachs, and straining and abdominal pain were observed. The feces, initially light in color, foamy, and watery, developed a characteristic sweet-nasty odor and sometimes contained large blood clots.

The duration of the disease was usually four to five days per animal and from two to four weeks per herd. The mortality was low. The disease spread by direct and indirect contact.

The infective agent does not seem to be of a bacteriological nature but is probably a virus; it is principally located in the digestive tract; and the feces seem to be the most important source of infection.—*Cornell Vet. July, 1951, pp. 251-253.*

## VETERINARY MILITARY SERVICE

**Rotation Policy for Veterinary Officers Announced.**—Information Bulletin Vol. II, No. 7, from the National Advisory Committee of the Selective Service System reports the following policy relative to the release of Veterinary Corps officers in the Army and Air Force.

**Army.**—Any veterinarian who served twelve months during World War II becomes eligible for release after seventeen months of current service, except those called in organized reserve units, who will serve the full twenty-four months.

**Air Force.**—Any veterinarian may request release after twenty-one months of service. If he were in Priority I or II, the twenty-one months must be during the present term of service.

## MARRIAGES

Dr. (COR '51) Charles E. Pilger, 612 W. Sunrise Highway, Merrick, Long Island, N. Y., to Dr. (COR '51) Mary Anne Farrell, Brewster, N. Y., on July 7, 1951.

Dr. Paul Edward Fessenden (UP '47), Milford, N. H., to Miss Mary Holt Smith on Aug. 20, 1951, at Brookline, N. H.

## BIRTHS

Dr. (TEX '43) and Mrs. George Harner, Springdale, Ark., announce the birth of a daughter, Jane Ann, on Aug. 20, 1951.

Dr. (OVC '37) and Mrs. A. L. Schaefer, Sebringville, Ont., announce the birth of a daughter, Deborah Jean Marie, on Sept. 1, 1951.

Dr. (WSC '44) and Mrs. M. W. Loge, Laguna Beach, Calif., announce the birth of a son, Michael Dean, on Sept. 5, 1951.

Dr. (ONT '50) and Mrs. W. G. Diehl, Detroit, Mich., announce the birth of their second son, William James, on Sept. 18, 1951.

## DEATHS

**Samuel B. Foster** (WSC '10), Portland, Ore., died July 25, 1951. Dr. Foster had been employed by the U. S. Bureau of Animal Industry.

**\*Bernard H. Gibson** (OSU '35), 39, London, Ohio, and his wife, Kathryn Fisher Gibson, drowned Sept. 18, 1951, while on a fishing trip to Canada. Dr. Gibson was admitted to the AVMA in 1936. They are survived by three daughters.

**E. W. Hagyard**, 88, Lexington, Ky., died August 15, 1951. Dr. Hagyard was well-known in the Thoroughbred racing world.

**James M. Kingston** (UP '12), 64, Pittsfield, Mass., died Aug. 22, 1951. Dr. Kingston was with the Massachusetts Department of Public Health for many years.

**Fred W. Loehrke** (IND '21), Logansport, Ind., died in August, 1951. Dr. Loehrke was employed by the U. S. Bureau of Animal Industry.

**\*Adrian A. Martin** (USC '18), 62, Emmitsburg, Md., died Nov. 25, 1950. Dr. Martin had been in general practice in Emmitsburg since 1918. He was admitted to the AVMA in 1936.

**Walter J. Schmidt** (MCK '15), Millstadt, Ill., died June 15, 1951. Dr. Schmidt was a general practitioner.

**\*Wilson A. Smith** (MCK '07), 76, Rock Valley, Iowa, died July 5, 1951. Dr. Smith was admitted to the AVMA in 1919.

\*Indicates members of the AVMA.



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## COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

- American Public Health Association. Annual meeting. Civic Auditorium, San Francisco, Calif., Oct. 29-Nov. 2, 1951. J. C. Geiger, director of public health of the city and county of San Francisco, in charge of local arrangements.
- Mississippi Valley Veterinary Medical Association. Annual fall meeting. Pere Marquette Hotel, Peoria, Ill., Oct. 31-Nov. 1, 1951. R. J. Kirkpatrick, 1235 N. Henderson St., Galesburg, Ill., secretary.
- Cornell Nutrition Conference for Feed Manufacturers. Statler Hotel, Buffalo, N.Y., Nov. 1-2, 1951. J. T. Reid, Department of Animal Husbandry, Cornell University, Ithaca, N.Y., chairman.
- Interstate Veterinary Medical Association. Annual meeting. Martin Hotel, Sioux City, Iowa, Nov. 1-2, 1951. E. G. Cole, 510 W. 19th St., Sioux City, Iowa, secretary.
- Association of Land-Grant Colleges and Universities, Division of Veterinary Medicine. Annual meeting. Rice Hotel, Houston, Texas, Nov. 13-15, 1951. William T. Oglesby, Department of Veterinary Science, Louisiana State University, Baton Rouge 3, La., secretary.
- National Association of Federal Veterinarians. Annual meeting. Hotel President, Kansas City, Mo., Nov. 14, 1951 (in conjunction with the meeting of the U. S. Livestock Sanitary Association). Members of the Executive Board will meet in Dr. Husman's room at 7:00 p.m., November 13; the members of standing committees will meet in the same room at 10:00 a.m., November 14; and the general meeting will be in room 229 at 7:00 p.m., November 14. L. T. Hopkins, 5837 Highland Ave., Kansas City 4, Mo., secretary.
- Midwest Small Animal Association, annual meeting, and American Animal Hospital Association, regional meeting. Hotel Burlington, Burlington, Iowa, Nov. 14-15, 1951. J. Porter Coble, 2828 S. MacArthur Blvd., Springfield, Ill., secretary.
- United States Livestock Sanitary Association. Fifty-fifth annual meeting. Hotel President, Kansas City, Mo., Nov. 14-16, 1951. R. A. Hendershott, 1 West State St., Trenton, N. J., secretary.
- Animal Care Panel. Annual national meeting. Thorne Hall, Chicago Campus of Northwestern University, Chicago, Ill., Nov. 29-30, 1951. Bennett J. Cohen, the Medical School, Ward Memorial Building, 303 E. Chicago Ave., Chicago, Ill., secretary.
- Kentucky, University of. Short course and conference for veterinarians. Animal Pathology Building, University of Kentucky, Lexington, Ky., Dec. 5-6, 1951. T. J. Stearns, Live Stock Exchange Building, Room 114, Bourbon Stockyards, Louisville, Ky., secretary.
- American Association for the Advancement of Science. Annual meeting. Convention Hall, adjacent to the University of Pennsylvania School of Medicine, Philadelphia, Pa., Dec. 26-31, 1951. R. L. Taylor, 1515 Massachusetts Ave., N.W., Washington 5, D.C., assistant administrative secretary.
- Oklahoma Veterinary Medical Association. Annual winter meeting. Mayo Hotel, Tulsa, Okla., Jan. 7-8, 1952. Lewis H. Moe, 1736 W. Third Ave., Stillwater, Okla., secretary.
- Wisconsin Veterinary Medical Association. Annual meeting. Schroeder Hotel, Milwaukee, Wis., Jan. 8-10, 1952. W. L. Richards, 1215 Vilas Ave., Madison, Wis., secretary.
- New York State Veterinary College. Conference for veterinarians. Cornell University, Ithaca, N. Y., Jan. 9-11, 1952. W. A. Hagan, dean.
- Tennessee Veterinary Medical Association. Annual meeting. Reed House, Chattanooga, Tenn., Jan. 14-15, 1952. H. W. Hayes, 734 Broadway North East, Knoxville, Tenn., secretary.
- Kansas Veterinary Medical Association. Annual meeting. New Town House Hotel, Kansas City, Kan., Jan. 14-16, 1952. This is to be a joint meeting with the Missouri Veterinary Medical Association. Olin W. Morris, Parsons, Kan., secretary.
- Minnesota State Veterinary Medical Society. Annual meeting. St. Paul Hotel, St. Paul, Minn., Jan. 14-16, 1952. B. S. Pomeroy, University Farm, St. Paul 1, Minn., secretary.
- Missouri Veterinary Medical Association. Annual meeting. New Town House Hotel, Kansas City, Kan., Jan. 14-16, 1952. This is to be a joint meeting with the Kansas Veterinary Medical Association. J. L. Wells, Box 676, Kansas City, Mo., secretary.
- Iowa Veterinary Medical Association. Annual

(Continued on p. 26)

## WHITE'S

## ANIMAL CASTRATION

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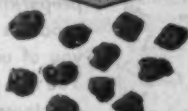
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No "fines"—No Flakes!



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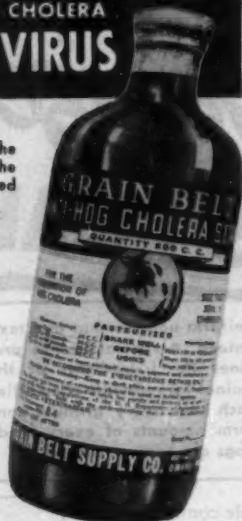
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Member Associated Serum Producers, Inc.

(COMING MEETINGS — continued from p. 24)

meeting. Fort Des Moines Hotel, Des Moines, Iowa, Jan. 16-18, 1952. F. B. Young, Waukee, Iowa, secretary.

Intermountain Veterinary Medical Association. Annual meeting. Newhouse Hotel, Salt Lake City, Utah, Jan. 21-23, 1952. M. L. Miner, Veterinary Science Department, Utah State Agricultural College, Logan, Utah, secretary.

Michigan State College, School of Veterinary Medicine. Annual postgraduate conference for veterinarians. Michigan State College, East Lansing, Mich., Jan. 23-24, 1952. Chester F. Clark, dean.

Illinois State Veterinary Medical Association. Annual meeting. Hotel Sherman, Chicago, Ill., Jan. 23-25, 1952. A. G. Misener, 6448 N. Clark St., Chicago 26, Ill., secretary.

Texas, State Veterinary Medical Association of. Annual meeting. Corpus Christi, Texas, Jan. 24-26, 1952. E. A. Grist, Box 11, New Braunfels, Texas, secretary.

Mississippi State Veterinary Medical Association. Annual meeting. Edgewater Gulf Hotel, Edgewater Park, Miss., Jan. 25-26, 1952. John A. Randle, West Point, Miss., secretary.

American Veterinary Medical Association. Annual meeting. Ambassador Hotel, Atlantic City, N. J., June 23-26, 1952. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

## Regularly Scheduled Meetings

Bay Counties Veterinary Medical Association, the second Tuesday of each month. Howard F. Carroll, 2024 Lombard St., San Francisco 23, Calif., secretary.

Cedar Valley Veterinary Association, the second Monday of each month (except July and August) at Black's Tea Room, Waterloo. F. E. Brutsman, Traer, Iowa, secretary.

Central California Veterinary Medical Association, fourth Tuesday of each month. Thomas Eville, Rt. 1, Box 136H, Fresno, Calif., secretary.

Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro. J. T. Dixon, Winston-Salem, N. Car., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. V. D. Ladwig, Sac City, Iowa, secretary.

(Continued on p. 28)

## SELECTIVE CHEMOTHERAPY

### *Hypodermically and Orally*

For antibacterial chemotherapy there are available a number of sulfonamide compounds.

**Everyday Streptococcus Infections . . .** Owing to its relatively good tolerance, Neoprontosil is of particular value in many streptococcus infections which are encountered in everyday veterinary practice, including septicemia, strangles, metritis, mastitis, distemper and meningitis. Relatively small doses have yielded very good results.

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Please send me complete information on  
therapeutic feeding of dogs and cats.

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## (COMING MEETINGS — continued from p. 26)

Cuyahoga County (Cleveland, Ohio) Veterinary Medical Association, the first Wednesday of each month—September through May (except January)—at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Roger W. Grundish, 4217 Mayfield Road, South Euclid 21, Ohio, secretary.

East Bay Veterinary Medical Association, bi-monthly, the fourth Wednesday. O. A. Soave, 5666 Telegraph, Oakland, Calif., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.

Greater St. Louis Veterinary Medical Association. Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Sunday evening of even-numbered months at the Jefferson Hotel, Peoria, Ill. S. M. McCully, Lacon, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel Continental. T. M. Eagle, Parkville, Route 2, Mo., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curtis, 70 Central Ave., Kansas City 18, Kan., secretary.

Keystone Veterinary Medical Association, the Penn-Sheraton Hotel, 39th and Chestnut St., Philadelphia, Pa., on the fourth Wednesday of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., corresponding secretary.

Maricopa County Veterinary Association, the second Tuesday of each month, Charles J. Prchal,

(Continued on p. 30)

# ORIGINAL POTENCY

at time of  
actual use!



## LYOVAC® BRUCELLA ABORTUS VACCINE

(DESICCATED)

### The Original Lyophilized Vaccine (Strain 19)

You are assured of these outstanding advantages when you use LYOVAC Brucella Abortus Vaccine—the first lyophilized vaccine—in full production since 1945:

**1. Potency Protected**—Possesses the antigenic value of the original fresh material at time of highest potency.

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**4. No Rigid Temperature Control**—Continuous refrigeration not necessary.

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**SUPPLIED: LV-4**—One VACULE® vial of vaccine and one vial (6 cc.) of diluent (1 dose).

**LV-4B**—Package of five VACULE® vials of vaccine and five vials (6 cc. each) of diluent (5 doses).

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BRANCHES: Atlanta, Baltimore, New York, Philadelphia, Denver, Memphis, Los Angeles, Columbus, Boston, Chicago, Kansas City, San Francisco, Portland, Dallas, St. Louis, New Orleans, Minneapolis.



1722 East Almeria Road, Phoenix, Ariz., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday night of each month from October through June, at the Hotel Essex House, Newark, N. J. Myron S. Arlein, 2172 Millburn Ave., Maplewood, N. J., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month. Write R. W. Worley, secretary, 3224 L.W.W., South Bend, Ind., for location.

Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San Luis Obispo, Calif., secretary.

New Castle County Veterinary Society, the second Wednesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington. Del. Harold Roberts, Paper Mill Road, Newark R3, Del., secretary.

New York City Veterinary Medical Association. Hotel Statler, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

North San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. V. E. Graff, Oakdale, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. James R. Ketchersid, 666 East Highland Avenue, San Bernardino, Calif., secretary.

Orange County Veterinary Medical Association, bimonthly, the second Tuesday of each month. J. H. Bower, P. O. Box 355, Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. E. W. Paul, Box 866, Redwood City, Calif., secretary.

Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month, in Tucson. R. W. Adams, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

Portland (Oregon) Veterinary Medical Association, the second Tuesday of each month, in the Auditorium of the Upjohn Company. L. G. Nicholson, 8415 S.E. McLoughlin Blvd., Portland 2, Ore., secretary.

(Continued on p. 32)

## NOW! Fast... Safe... SURE Way To Dehorn Calves

### Sunbeam STEWART

#### AUTOMATIC HEAT CONTROL CALF DEHORNER

Electric dehorning with the new Sunbeam Stewart Calf Dehorner is *fast, safe and certain*. Dehorning can be done any time of year. Only a few minutes are required for the entire job. No loss of blood—no open flesh wound—no bad after effects. Dehorner has automatic control for steady high heat for dehorning or soldering. Cool, easy-grip handle. Complete with heavy duty soldering tip.



- Automatic Control for Steady Heat
- Fast—Easy to Use
- No Loss of Blood—No Open Flesh Wound

Becomes heavy-duty soldering iron when soldering tip is attached.

Write for information about Sunbeam Stewart animal clipping equipment

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**HEALTH and  
NUTRITION**  
go hand in hand



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Troy N. Kinder, like all cattlemen, strives to produce meat at the lowest possible cost.

To aid him in his management problems he turns to his Purina Dealer and his local Veterinarian. Kinder states, "Veterinarians are one of the greatest aids we've had in our business. Through their services

we've sure saved plenty of money, besides time and losses."

Kinder feeds Purina all the way. He feeds Purina Range Checkers to his cow herd, and his show animals are fitted on Purina Beef Chow and home grains. He is another successful cattleman who realizes that health and nutrition are inseparable.



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**TWICE AS MUCH PENICILLIN  
AT NO INCREASE IN COST!**

Regular Mastics now contain 50,000 units of penicillin instead of 25,000 units, but the price has not been changed.

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(Trade Mark Reg. U.S. Pat. Off.)



**for  
MASTITIS  
CONTROL**

Mastics are the original udder bougie  
Sold only to veterinarians

**MASTICS** are greaseless and completely soluble... won't contaminate the milk

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Mastics P & S—with 50,000 units of penicillin,  
50,000 mcg. of streptomycin  
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Mastics are consistently promoted in dairy, farm and breed journals.

Made only by

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WEST CHESTER, PENNA.

(COMING MEETINGS — continued from p. 30)

Redwood Empire Veterinary Medical Association, the third Thursday of each month. John E. Wion, 3614 Redwood Highway South, Santa Rosa, Calif.

Roanoke-Tar (N. Car.) Veterinary Medical Association, the first Friday of each month, 7:00 p.m., in Rocky Mount. G. L. Gilchrist, Edenton, N. Car., secretary.

Sacramento Valley Veterinary Medical Association, the fourth Friday of each month. R. C. Goulding, 11511 Capitol Avenue, Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. R. J. McFarland, 3621 Jewell St., San Diego 9, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. R. W. Sprowl, 11756 San Vicente Blvd., Los Angeles 49, Calif., secretary.

South Florida Veterinary Society, the third Tuesday of each month, 8:00 p.m., at the Peckway Skeet Club, Robert P. Knowles, 2936 N.W. 17th Ave., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. John Carnes, Muskogee, Okla., secretary.

**Bovine Keratitis in England.**—An organism is described which is apparently identical with the *Hemophilus bovis* found by American workers. This is the first report from England of this type of infection in cattle.—*Vet. Rec.*, Feb. 1951.

## New Literature on Dog Care

Among new pamphlets being placed in the hands of veterinarians, for distribution to pet-owning clients, are publications from the Pard department of Swift & Company and from the Upjohn Company. The Swift literature impartially discusses the feeding and care of dogs, with emphasis on the importance of the veterinarian's counsel on all health problems. The Upjohn pamphlet deals with the selection and care of a puppy and contains frequent reminders about the veterinarian's role in canine health.



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**CARROT OIL VITAMINS**

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**Vitamin A—104,320 USP units per pound**

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units per pound**

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**Riboflavin—20 milligrams  
per pound**

Vitamin sources: Irradiated yeast, brewers' dried yeast, vitamin A and D oil, active dry yeast, D-activated animal sterol and wheat germ oil meal.

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of soybean, linseed and alfalfa meals make RIB-AD No. 1 acceptable to the most delicate eaters. Can be mixed with Vitamineral Supplements.

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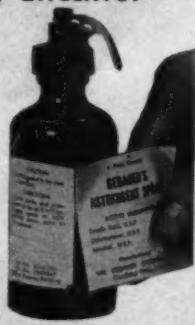
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## Gebauer's Astringent Spray

Gebauer's Astringent Spray, an antiseptic and analgesic preparation, combining Tannic Acid, Chlorbutanol, and Alcohol, has rapidly been gaining preference among veterinarians.

Indicated in the treatment of many types of effective affections such as those that are often designated "weeping eczema"; in the treatment of ordinary wounds and abrasions, and ordinary burns.

The solution emitted from the famous Gebauer "Dispenseal" bottle with the force of a jet stream insures rapid, thorough application, leaving a thin transparent film of tannic acid clinging firmly to the skin. A transparent protective coating promptly forms on minor cuts, lacerations, and abrasions. Usually, in cases of explosive type eczema, weeping is quickly controlled, and in most cases no further dressing or bandaging is necessary. Supplied with tear-off label. For more complete information, write your supply house or Dept. J, THE GEBAUER CHEMICAL CO.



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EDITOR, JOURNAL OF THE AMERICAN  
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Dear Sir:

I note with interest your comment on ad page 32 of the August issue. This touches a tender spot. In the morning mail I received a letter and literature from the same company boasting of a product of theirs "for the veterinary profession." They are perfectly willing to use the knowledge and work of veterinarians and then sell to the laity.

Another of these so-called "ethical" firms . . . is now marketing a "one-shot distemper vaccine." The salesman swore up and down that they were selling only to the profession — but every kennel in the area is using it and buying it.

Another firm . . . has two products: . . . which were boosted by the profession until they became popular. Now they can be purchased in any drug or feed or candy store despite the salesman's telling me they could not.

Now I know you can not refuse them [ad.] space in the JOURNAL or at the convention, but can you not put a sign at their places to read: "These products advertised and sold direct to drug and feed stores, kennels, or even the garbage man."

Yours very truly,  
I. I., D.V.M.

[Certain companies are not invited to advertise in the JOURNAL or to exhibit at the AVMA conventions.—THE EDITORS.]



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The "Burdizzo" eliminates castration losses . . . no shrink . . . no infections . . . no screwworm risks! Order from **Jensen-Salsbery Laboratories, Inc.** Kansas City 10, Missouri

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for  
intestinal bacterial  
infections of animals

- THALISUL is relatively non-toxic.
- THALISUL is absorbed into the intestinal wall.
- THALISUL produces effective concentrations in the intestines.
- THALISUL is only sparingly absorbed into the blood stream.
- THALISUL is effective against intestinal infections in dogs' and calf scours.



Supplied in 0.5 Gm.  
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(30 gr.) tablets in  
Bottles of 100 and 500

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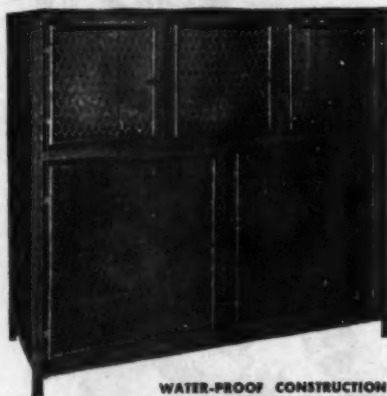
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Rogoff, George, Phthalysulfacetamide in  
Veterinary Medicine, Jauma (Sept. 1950)  
Christian, A. B., To Be Published

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**5 COMPARTMENT STALLS**  
**\$179.90**



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 HEAVILY GALVANIZED SHEETS  
 NO EXTRA CHARGE!**

Bottoms are water-proof trays with  $\frac{1}{4}$ " turned up edges, heavily soldered together. Braced, aluminum painted,  $\frac{1}{4}$ " angle iron frames. Door frames 1" O. D. pipe. Dog proof mesh filler welded to frame. All sheets heavily galvanized.

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 SIZES: 3 upper stalls 24" x 24" x 25" deep.  
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 Overall size: 6' wide x 5'6" high x 28 1/2" deep.  
 Stalls stand 6 in. off floor.



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Ford DOUBLE FRAME Panel Runs insure SAFETY for your dogs. Chain link fabric is rust resistant, cannot be spread; permanently locked by INNER BAR FRAME. NO TIE WIRES TO RUST. Clamp together. No bolt holes to match. Portable or permanent construction.

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WANTED—veterinarian for field work in T.B. and Bang's disease testing in State of Delaware. Apply to Dr. Harry McDaniel, Jr., Director, Livestock Sanitation, State Board of Agriculture, Dover, Del.

WANTED—assistant veterinarian for busy small animal practice. State qualifications, full particulars, and salary expected in first letter. Address Drs. Ryan and Rands, Davis Veterinary Hospital, Stamford, Conn.

VETERINARIAN WANTED—to assist with mixed practice. Mostly large animals. State whether you want salary or commission. Located in Washington State. Address "Box M 12," c/o JOURNAL of the AVMA.

WANTED—veterinarian as assistant director of virus research project located in the East. Prior laboratory experience is essential; virus laboratory experience desirable. State qualifications. Address "Box N 3," c/o JOURNAL of the AVMA.

VETERINARIAN WANTED—man or woman, experienced small animal work. Profit sharing, pays \$7,000 minimum to start. Must be capable taking full charge. Address Dog House Veterinary Hospital, 14870 Livernois, Detroit 21, Mich.

*(Continued on p. 38)*

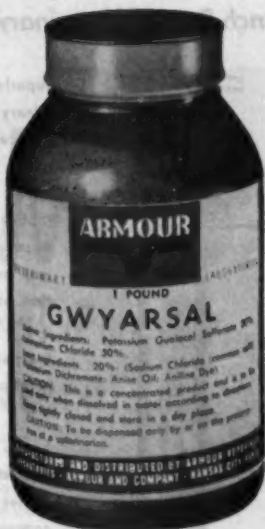
# Gwyarsal...

**For Horses — Cattle — Sheep — Swine — Dogs — Cats**

A concentrated product for use in preparing expectorant solutions for domestic animals... Freely soluble... A red powder that produces a red to reddish-brown colored solution... Packed in 1-pound glass bottles.

**Active ingredients: Potassium Guaiacol Sulfonate 30%; Ammonium Chloride 50%.**

**An excellent dispensing item, reasonably priced.  
Its use means satisfied clientele.**



LABORATORIES

• KAW STATION • KANSAS CITY 18, KANSAS

## Natural Calcium Phospho Carbonate

with Vitamin D<sub>2</sub>

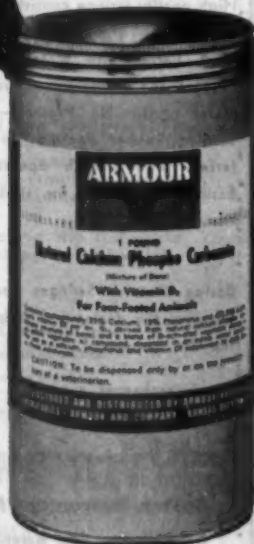
**For Supplementary Feeding in Diets Low in  
Calcium, Phosphorus, and Vitamin D<sub>2</sub>**

Natural Calcium Phospho Carbonate has been produced from organic sources in a definite particle size. This particle size makes possible a high degree of assimilation (98% in controlled experiments).

It provides calcium and phosphorus in their natural or optimum ratio along with trace minerals and 4000 U. S. P. units of Vitamin D<sub>2</sub> per teaspoonful.

When used as a supplement to diets low in these substances, it aids in the control of rickets, osteomalacia, ring-bones, splints, poor skeletal development and poor tooth formation. It also helps maintain normal reproduction and lactation.

Available in 1-lb. — 5-lb. — 25-lb. packages. Dispensed only by or on the prescription of Graduate Veterinarians.

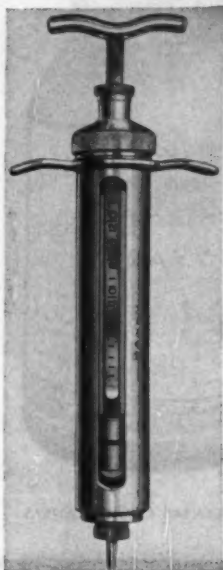


VETERINARY

LABORATORIES • KAW STATION • KANSAS CITY 18, KANSAS



## Ranch Record Veterinary Syringe



Superior quality veterinary syringes—Choice of ground glass barrel with metal plunger or rubber packing—Accurate dosage and smooth operation always assured.

Inexpensive replacement parts available.

Inquire at your nearest veterinary dealer or wholesaler concerning this outstanding product.

Sizes 2 cc. to 40 cc.

## Boston Record Syringes

High quality syringe consisting of graduated, ground, resistance glass barrel with nickel silver plunger and strongly constructed metal parts. No Washers—No Binding Rubber Packings to interfere with smooth operation. Easily disassembled for sterilization.

### Low In Cost

Boston Record Syringes create sales for the dealer and satisfaction for the user.

Repair exchanges available.  
Sizes 1 cc. to 150 cc.



Literature Upon Request

**Boston Instrument Mfg. Co., Inc.**  
**50 Thayer St., Boston 18, Mass.**

(CLASSIFIED ADS — continued from p. 36)

**WANTED**—veterinarian with experience in diagnosis of animal and poultry diseases to take charge of branch state laboratory in the East. In reply state qualifications. Address "Box N 4," c/o JOURNAL of the AVMA.

**WANTED**—veterinarian for research work on animal diseases, some postgraduate experience in bacteriology and pathology plus ability to work with ranchers required. Unusual opportunity for qualified man. Apply Department of Veterinary Science, University of Nevada, Reno, Nev.

**VETERINARIANS WANTED**—The State of Wisconsin has accelerated its program in brucellosis control. There are several new positions for professionally trained veterinarians. Starting salary, \$453 a month. Permanent civil service position. Provision for vacation, retirement, and salary increases. Eligibility based on securing license to practice veterinary medicine in Wisconsin. Address Bureau of Personnel, State Capitol, Madison, Wis.

**WANTED**—veterinarian for general assistantship in large mixed practice in Southwest. Salary dependent on ability and willingness to hustle. Contact by phoning 22644 or write Mason and Thomas, 906 Broadway, Little Rock, Ark.

**WANTED**—young veterinarian, graduate of AVMA-approved school, interested in mixed practice. Good future. Salary open. Modern small animal hospital. Located here in 1919. Address "Box N 16," c/o JOURNAL of the AVMA.

Interesting employment for the veterinarian who wants to help develop the field of veterinary public health. Applicants please address Dr. W. B. Prothro, Director, Kalamazoo City-County Health Dept., City Hall, Kalamazoo, Mich.

County veterinarian wanted for Bangs and T.B. control and private practice in Gilliam and Wheeler counties, Oregon. For particulars, contact L. J. Marks, Secretary, Wheeler-Gilliam Stockgrowers, Fossil, Ore.

**WANTED**—a recent or 1951 graduate as assistant in a mixed practice in the Midsouth. Furnished apartment available. State salary expected. Opportunity for partnership for right man. Address "Box N 11," c/o JOURNAL of the AVMA.

As part of its program of expansion, the Virginia Division of Animal Industry has openings for four qualified veterinarians, one as regional laboratory director and the others as field inspectors. Forty hour week, sick leave and annual leave allowances, and participation in a liberal retirement plan. For further information, address above agency, 1102 State Office Building, Richmond, Va.

**VETERINARIAN WANTED**—for staff of small animal hospital. Must be Gentle and graduate of AVMA-approved school. Experience not necessary. Apartment available. Address Stresser Animal Hospital, 5144 W. Grand Ave., Chicago 39, Ill.

The Lincoln-Lancaster County Health Department desires a veterinarian in the Division of Sanitation, Meat, and Milk Section activities. Must be graduate of AVMA-approved school, must have or be able to

(Continued on p. 40)



# Captive ENZYMES

## A Vital Natural Factor in Animal Nutrition



In making vitamin-enzyme concentrates available to the veterinarian, the Rumelk Company offers the profession a highly effective method of treating nutritional deficiencies and functional digestive disorders with Natural Factors.

Enzyme cultures used in our concentrates are prepared by an exclusive process, which produces a new and more practical combination of enzyme systems that have a maximum potency in the growth media.

B Complex Vitamins, for example, are present in quantity as Natural Factors in the enzyme growth. B<sub>12</sub> is also an inherent factor grown in the media by enzyme culture.

Digestive malfunction in animals is a contributing cause of various deficiencies, and this condition is usually the outcome of poor diet and inactivity. Concentrated vitamin-enzyme supplements, as prepared by the Rumelk Company, give the veterinary profession the positive means of treating animals with the Natural Factors which nature intended for the animal to receive in order to maintain proper digestion for efficient food assimilation.

With proper food assimilation, the animal maintains itself in a healthy and aggressive appearance. Better starch and protein digestion gives the animal immediate food energy. Rennin activity for milk digestion decreases scouring condition. Lipase helps to digest fats so that the coat receives more body oil through fat assimilation.

The Rumelk Company offers the profession the following vitamin-enzyme products for nutritional therapy:

**RU-ZYME® (cow)** for mature ruminants

**RU-ZYME® (calf)** for the young ruminant

**KA-ZYME**—vitamins and enzymes for small animals

**EN-ZYME**—all liquid enzyme extract for small animals

\*Contains preserved rumen bacteria (U. S. Patents Pending)

*Ask your Veterinary Supply Dealer or write direct for complete details.*



## RUMELK COMPANY

Manufacturers of Vitamin-Enzyme Products

SALEM, VIRGINIA

SYMBOL OF  QUALITY

## PHENOTHIAZINE

### REGULAR N. F. or DRENCH TYPE

1 lb. can (12 to case)	\$ .80 per lb.
5 lb. can	.77 per lb.
10 lb. drum	.76 per lb.
25 lb. drum	.74 per lb.
150 lb. drum	.68 per lb.

## PHEN O BOLES®

12 1/2 gram Bolus—Box of 25	\$1.50
12 1/2 gram Bolus—Box of 100	5.15
2 gram Tablet—Bottle of 100	.98

## NUTRITIONAL

### CALF CAPSULES

Vitamin A	5000 USP Units
Vitamin C	5000 USP Units
Vitamin D	500 USP Units
Niacin	50 mg.
Bottle of 100	\$ 2.35
Bottle of 500	10.75

### OCTO-MINS — A, C, D, & B Complex — 8 Vitamin Capsule

Formula on request.

Bottle of 100	\$ 1.35
Bottle of 1000	11.00

### CALCIUM GLUCONATE USP POWDER

5 lb. can	\$ .91 per lb.
10 lb. drum	.88 per lb.
25 lb. drum	.85 per lb.

### DEXTROSE USP POWDER

10 lb. drum	\$ .40 per lb.
25 lb. drum	.35 per lb.
100 lb. drum	.29 per lb.

### UREA USP CRYSTALS

10 lb. drum	\$ .28 per lb.
25 lb. drum	.24 per lb.

## SULFONAMIDES

### SULFANILAMIDE USP POWDER

1 lb. bottle	\$1.80 per lb.
10 lb. drum	1.70 per lb.
25 lb. drum	1.65 per lb.
100 lb. drum	1.55 per lb.

### SULFATHIAZOLE SODIUM USP POWDER

1 lb. bottle	\$4.95 per lb.
5 lb. bottle	4.90 per lb.

### SULFAPYRIDINE SODIUM POWDER

1 lb. bottle	\$10.00 per lb.
5 lb. bottle	9.75 per lb.

Write for Complete Price List

Terms 1%, 10 days net 30 F.O.B. Chicago  
Freight Allowed on Shipments of 100 Lbs. or More  
Rocky Mountain and Pacific Coast Prices Slightly Higher  
Prices Subject to Change Without Notice

## AMERICAN CHEMICAL CO.

1116 West 37th Street, Chicago 9, Illinois

(CLASSIFIED ADS — continued from p. 38)

obtain Nebraska license, and must have had three years' veterinary medical experience, one of which was in public health. Training and/or experience in meat sanitation and the field of milk production, processing, and distribution, as related to a producers' area and plant sanitation, necessary. State minimum salary expected. Car provided. Address Dr. Roland H. Loder, Department of Health, 935 R Street, Lincoln, Neb.

**WANTED**—assistant small animal veterinarian. Salary or commission. Busy hospital in East. Would consider selling or leasing later to capable, responsible man. Please state experience, draft status, age, etc., and enclose photo. Address "Box N 15," c/o JOURNAL of the AVMA.

### Wanted—Positions

**POSITION WANTED**—veterinarian with small animal experience desires position with small animal practitioner leading to partnership or sale. Licensed in Connecticut, New Jersey, and Pennsylvania. Address "Box M 14," c/o JOURNAL of the AVMA.

Veterinarian, single, age 49, healthy, in practice since 1930, doctorate degree in 1947, and voluntary assistant in a veterinary college for large and small animals in Germany, desires position as assistant in mixed practice or small animal clinic. Address "Box N 6," c/o JOURNAL of the AVMA.

German veterinary surgeon, D.M.V., refugee from eastern Germany, age 40, wife and one son, expert in country practice, surgery, control of sterility, and

(Continued on p. 42)



### RIVERSIDE ALL STEEL KENNELS—QUALITY FIRST

Seven Compartment. Upper tier 22x20x30. Lower tier 28x28x30.  
Five Compartment. Upper tier 22x20x30. Lower tier 27x31x30. Sliding doors may be installed between openings for extra large cages if desired. Bottoms of cages are galvanized.  
MINOR CHANGES IN DESIGN AND EQUIPPED WITH 3-inch ball bearing CASTERS AT NO EXTRA COST. Footproof latches and identification tags on steel barred doors. Bottom cages have six-inch ventilating strip. Shipment FOB our plant.

5 compartment	\$195.00
7 compartment Single	\$275.00
8 compartment	\$310.00 each

TERMS MAY BE ARRANGED IF DESIRED

A lifetime of service and guaranteed by one of California's oldest iron works.

## RIVERSIDE IRON WORKS

5422 Mission Blvd. Riverside, California



What should we feed him?

What about leftovers from the table?

Will he need a variety of foods?

Is meat a dog's best food?

Is there a dog food that gives him everything he needs?

## There's no question about it when you **RECOMMEND PARD**

*Better for a dog than red, raw meat!*



New dog owners are full of questions. And, naturally, the question most of them ask most often is: "What should we feed him?"

The table shows *how right* you are when you recommend PARD. For Swift makes this famous dog food

so that it gives a dog all the good meat protein he loves, *plus* all the other important nutrients he needs.

PARD is a perfectly balanced, complete food. A dog needs nothing more, can get nothing better. Suggest it with confidence.

### A COMPLETE, BALANCED FOOD

contains:

Vitamins	Minerals	Meat Protein	Wheat	Irradiated Yeast
Fish Liver Oil	Berley	Soy Flour	Ground Edible Beans	

Check these nutrients in a 1-lb. can of Pard against those in any other prepared dog food you know!

Protein	52.8 gms.	Calcium	2.9 gms.	Vitamin B	
Carbohydrates	40.7 gms.	Phosphorus	1.86 gms.	Thiamine	1.01 mgs.
Fat	14.7 gms.	Vitamin A	500.0 units	Riboflavin	1.00 mgs.
Iron	22.7 mgs.			Niacin	50.2 mgs.

(Energy: 100% of daily caloric needs for average-size (25-35 lb.) dog)



meat inspection, desires a position. Speaks English well. Passage will be paid, but surety for immigration is wanted. Address Dr. R. Schultz, Tierarzt, (27a) Willebadessen, Krs. Warburg, Longestrasse 8, Brit. Zone, Germany.

**ATTENTION: FLORIDA SMALL ANIMAL VETERINARIANS.** Do you need competent professional assistance during winter months? Wisconsin small animal hospital owner with eight years' small animal practice experience would like position as assistant in busy small animal hospital during January and February. Address "Box N 13," c/o JOURNAL of the AVMA.

Recent Colorado A. & M. College graduate, age 30,

married, family, desires assistantship or partnership in mixed practice with sound future. Now engaged in own practice. Prefer western state. Address "Box N 10," c/o JOURNAL of the AVMA.

#### Remittance must accompany order

Veterinarian, age 30, O.S.U. graduate, desires position in mixed practice leading to partnership or purchase. Licensed in Ohio, Mississippi, and Texas. Large and small animal experience. Not afraid of hard work. Can furnish references and further information on request. Address "Box N 8," c/o JOURNAL of the AVMA.

#### Wanted—Practices

**PRACTICE WANTED**—established mixed practice in New York or Connecticut. Will also consider partnership or assistantship with definite option to buy. Address "Box N 7," c/o JOURNAL of the AVMA.

**WANTED TO BUY**—small animal hospital, preferably in Ohio. Licensed New York, Pennsylvania, and Ohio. Highly experienced. Financially responsible. Family, prefer with residence. Address "Box N 18," c/o JOURNAL of the AVMA.

#### For Sale or Lease—Practices

**FOR SALE OR LEASE**—new hospital in Indiana, 24 by 40, well built, 5 rooms with 20 stalls. Will sell complete with real estate, drugs, and equipment for \$15,000. Practice grosses \$20,000 and growing. If so desired, would sell drugs and equipment and lease building for ten or more years. Very easy terms and small down payment available. Address "Box M 16," c/o JOURNAL of the AVMA.

**FOR IMMEDIATE SALE OR LEASE**—animal hospital and small chick hatchery combination. Will sell separately or as a unit. Very modern cement block building, outside dog runs. Unlimited opportunity. Address Mrs. E. M. DeTray, Napoleon, Ohio.

**FOR SALE**—large animal practice in Midwest. Hogs and cattle evenly divided. Gross \$17,000. Home, drugs, practice, and equipment \$12,000. Priced to sell. Address "Box N 5," c/o JOURNAL of the AVMA.

Will sell equipment and lease small animal hospital and practice in West Hartford, Conn. Upstairs apartment will be available in approximately one year. Address "Box N 9," c/o JOURNAL of the AVMA.

**FOR SALE**—large animal practice, long established, British Columbia coast, gross at least \$12,000. Price \$3,000 including some instruments and equipment. No competition. Modern home, with large office for rent or sale optional. Address "Box M 21," c/o JOURNAL of the AVMA.

**FOR SALE**—mixed practice in Midwest city of 40,000. Includes 2½ acres, all modern house, garage, 4-room hospital, outside individual concrete runs, complete equipment, drug inventory, and established

(Continued on p. 44)

## 6 Extra Ways SALT PLUS

**ASSURES YOU HEALTHIER,  
MORE PROFITABLE ANIMALS**

Farm animals thrive on salt. They also need trace minerals to insure healthy, productive stock. They get these minerals, along with salt, when you feed them **STERLING BLUSALT!**

**COBALT**...lack of cobalt results in loss of appetite, stunted growth in sheep and cattle.

**IODINE**...regulates functions of thyroid gland and its secretion.

**MANGANESE**...helps prevent sterility...increases ability of female to lactate.

**IRON**...essential for healthy red blood...aids in prevention of anemia.

**COPPER**...essential to convert iron into red blood cells.

**ZINC**...promotes longer life, better growth.

**FEED STERLING  
TRACE-MINERAL  
BLUSALT**



**100-LB. BAGS  
50-LB. BLOCKS  
4-LB. LIKS**

Sold by authorized dealers  
everywhere.

**INTERNATIONAL SALT COMPANY, INC.**  
Scranton, Pa.

### effective caloric support

Whenever a caloric supplement is desirable in small-animal practice, Lipomul-Oral can be used to good advantage. It may be administered post-operatively, in intestinal parasitism, in infections and convalescence, in undernourishment, and in eczema. Lipomul-Oral is a readily-absorbed and well-utilized preparation, providing 120 calories per fluid-ounce. It may be administered in milk or undiluted.



#### Lipomul-Oral contains:

Vegetable oil ..... 40% w/v  
Dextrose, Anhydrous ..... 10% w/v  
Preserved with  
Sodium Benzoate ..... 0.1% w/v

Highly emulsified to supply vegetable oil of desirably small particle size in aqueous dispersion.

#### Average dosage for small animals:

1/2 to two ounces Lipomul-Oral once or twice a day in milk, other food or plain.

#### for your practice

For a supply of diets and folders, simply fill in and mail this coupon



## Lipomul\*Oral

available in pint bottles from Upjohn Branch Offices or prescription pharmacies.

DEPARTMENT OF VETERINARY MEDICINE  
THE UPJOHN COMPANY, KALAMAZOO, MICH.

Gentlemen:

Please send me a supply of each item checked below:

#### folders

1. A diet for your dog.....
2. Suggestions for feeding your puppy.....
3. Suggestions for the care and feeding of cats.....
4. Choosing and caring for a puppy.....

#### diet sheets

1. Special Dog Diet #2 (high animal protein).....
2. Special Dog Diet #3 (low animal protein).....

D. V. M.

CITY

STATE

\*trademark

## Upjohn

Department of Veterinary Medicine

THE UPJOHN COMPANY, KALAMAZOO, MICHIGAN

ATLANTA • BOSTON • CHICAGO • CLEVELAND • DALLAS • KALAMAZOO  
KANSAS CITY • LOS ANGELES • MEMPHIS • MINNEAPOLIS • NEW YORK  
PHILADELPHIA • PORTLAND • SAN FRANCISCO • TORONTO, CANADA

# M·A·C

## + QUICK AND SAFE +



in treating Splints,  
Spavins, Curbs, Side-  
bones, Inflamed Ten-  
dons, Bursal Lame-  
ness, Etc.

Write for Descriptive Price  
Sheet of Veterinary Dis-  
pensing Products

### PRICES

Single Bottle.....	\$2.00
3 and 1 free.....	5.00
6 and 2 free.....	9.00
12 and 4 free.....	17.00
24 and 4 free.....	28.00

Postage paid in the United States

**CARTER-LUFF CHEMICAL CO.**

Hudson, N. Y.

## DE LUXE CAGES



**IMPROVED 7-CAGE DE LUXE DRAIN UNIT**  
Also Available in Removable Tray Style, or  
Plain, Flat Floor Style

Note new style Bar Doors — Heavier ( $\frac{3}{8}$ " ) rods  
— eliminates brace bar in center. Note: Frames  
of door are rounded on top; water runs off in-  
stead of remaining on door frame.

**IMPROVED DOG DRYER WITH  
ENTIRELY TRANSPARENT DOORS**

Write for cage booklet; also dryer folder

The 1951 price list is now available

**Baltimore Wire & Iron Works**

514 N. Jasper Street Baltimore 1, Maryland

(CLASSIFIED ADS — continued from p. 42)

name. Price is real estate value, plus drug inventory,  
plus 75 per cent of equipment inventory. Oppor-  
tunity for greatly increasing small animal income.  
Reason for selling—war disability. Address "Box  
N 17," c/o JOURNAL of the AVMA.

**ANIMAL HOSPITAL**—five years old, fully  
equipped. Located in Merced, Calif., on U.S. High-  
way 99. Buildings are of bungalow style and are  
of reinforced concrete and a special small building  
block made especially for this improvement. Larger  
front building is the hospital proper and living  
quarters, with smaller buildings for kennels, wire  
cages, and a separate building which is the isolation  
ward. The buildings are all enclosed with the same  
building block and therefore give the appearance  
of one large building. Parking space and entrance  
both front and back with room for future expansion.  
This is an unusual opportunity for some veterinarian  
to step in and take over. The practice was very  
large and the sale is necessitated by the death of the  
owner. The practice consisted of both outside large  
animals and the hospital for small animals.

\$35,000 full price, including property, buildings,  
equipment. \$15,000 down, balance in monthly in-  
stallments; or will consider rental basis with the first  
year paid in one installment and with monthly rental  
thereafter providing agreement for the sale of equip-  
ment. For complete details address Martin H. Paul-  
sen, P.O. Box 815, Merced, Calif.

**FOR SALE OR LEASE**—fully equipped small ani-  
mal hospital in rapidly growing Nassau County, Long

(Continued on p. 48)

**TAMM** prophylactic  
aid  
to  
udder  
care!

**Udder Supports**

The TAMM Support provides three plus factors in udder care  
and treatment!

1. Positive protection against self-sucking, stepping on teats,  
cuts, and bruising from fence wire, ramp rails, stumps, etc.,  
with the accompanying danger of infection.
2. Transfers the weight of heavy, swollen, or congested udders  
from strained muscles to the cow's back, preventing further  
breakdown.
3. Waterproof bag also serves as a container for medicinal  
solutions in which udder treatment can be extended at effective  
temperatures.

Available in four sizes — extra small (cows 800 lbs. or  
less), small (900 to 1100 lbs.), medium (1100 to 1600  
lbs.), large (over 1600 lbs.).

ORDER today — \$15.00 retail. 30% professional discount.  
Write to Dept. V-11 for complete information!

**Franksville  
Specialty Co.**  
FRANKSVILLE • WIS.

## FOOT ROT OINTMENT — DEBRIDING AGENT

Foot Rot Ointment effects a virtual chemical debridement of infected areas. Two to three applications of the Ointment are usually sufficient in necrobacillary infections. Thus Foot Rot Ointment saves time in treating foul hoof in cattle and foot rot in sheep.

Foot Rot Ointment contains sulphuric acid, iodine, pyoktannin blue and alcohols in a specially treated petrolatum base.

Foot Rot Ointment is available in:

4 oz. jars.....per dozen \$ 6.25  
1 lb. jars.....each \$ 1.50  
1 lb. jars.....per dozen \$16.50  
5 lb. jars.....each \$ 6.25

Foot Rot Ointment is one of the Veterinary Pharmaceuticals manufactured by Goshen Laboratories, Inc. In addition to the products manufactured, Goshen Laboratories, Inc. acts as Sole Agent for the Veterinary Specialties of many leading pharmaceutical companies.

**GOSHEN LABORATORIES, INC., GOSHEN, NEW YORK**



GOSHEN Leads...

(AVMA REPORT — continued from ad page 8)

♦ President John R. Wells carried the message of the AVMA to the Southern Veterinary Medical Association meeting in Baltimore, Md., October 22-24, and to the Florida Veterinary Medical Association in Tampa on Oct. 28-30, 1951.

★ ★ ★

♦ Assistant Executive Secretary C. D. Van Houweling spoke to the University of Pennsylvania Student Chapter on Oct. 3, 1951, while on an Association business trip to New Jersey and Washington, D. C.

★ ★ ★

♦ Dr. W. R. Krill, Executive Board member from District X, represented the Association at the annual Purdue University short course for veterinarians held Oct. 3-5, 1951, in Lafayette, Ind.

★ ★ ★

♦ President-Elect W. L. Boyd represented the AVMA at the Southern Minnesota and Interstate Veterinary Medical Association meetings in Austin, Minn., and Sioux City, Iowa, on September 14 and Nov. 1 and 2, 1951, respectively. He also attended the Institute on Livestock and the Land, held at Albert Lea, Minn., on September 26.

★ ★ ★

♦ The Official Roster in the October JOURNAL erroneously listed Dr. R. A. Hendershott as chairman of the Public Health Section and Dr. Oscar Sussman as secretary. The reverse is correct, Dr. Sussman is chairman and Dr. Hendershott is secretary.

★ ★ ★

♦ Dr. A. M. Orum, Carthage, Ill., member and past chairman of the Committee on Practitioner Participation in Brucellosis Control, will represent the committee and the AVMA at the U.S. Live Stock Sanitary Association meeting in Kansas City, Mo., Nov. 14-16, 1951. Assistant Executive Secretary C. D. Van Houweling will also attend this meeting.



# SQUIBB *offers*



# SQUIBB

# NOVOXIL UTERCAPS\*

*...for the treatment  
of retained placenta,  
metritis and pyometra*

**Description:** An elongated gelatin capsule containing approximately 0.36 grams of active colloidal silver oxide.

**Indications:** For the treatment of retained placenta, metritis and pyometra in cows and mares.

**Advantages:** Easy to insert. Extremely effective. Economical. Nontoxic. Stable.

**Dosage:** *Retained placenta*—Insert one Utercap into each horn of the uterus. If the condition of the uterus prevents insertion into the horns, place two Utercaps into the uterine cavity or deeply into the cervical canal. If infection persists after 7 days, insert an additional Utercap.

*Metritis*—Insert two Utercaps into the uterus; one into each horn if possible. If the infection persists after 7-10 days, insert an additional Utercap.

*Pyometra*—Insert two Utercaps into the uterus. If the infection persists after 7 days, insert an additional Utercap.

**Administration:** By hand or by use of balling gun.

**How Supplied:** In boxes of 3 Utercaps that bear tear label and full instructions. Four boxes of 3 in cardboard shipper.

**Expiration:** None. Should be kept in cool place, not exceeding 59 degrees F.

For further information, address E. R. Squibb and Sons, Dept. AVM-11, Veterinary and Animal Feeding Products Division, 745 Fifth Avenue, New York 22, New York.

\*"Novoxil" and "Utercaps" are trademarks of E. R. Squibb & Sons.

- A NAME YOU CAN TRUST



## MULTI-SCOUR

### Bolus-tablets

Combining equal parts of: Sulfathiazole, and Compound Chalk Powder, in a 100 grain creased bolus-tablet, easily administered with Sulfaguanidine, Tannins, Alumina Hydrate balling gun or capsule forceps.

#### A MULTIPLE APPROACH in treating SCOURS of CALVES — PIGS — COLTS

Successful in extremely high percentage of cases.

50 .....	\$ 4.40	100 .....	\$ 8.40
500 .....	40.00	1000 .....	75.00

### CURTS-FOLSE LABORATORIES

Select Pharmaceuticals for the  
Veterinary Profession since 1918

73 Central Avenue Kansas City, Kansas

## DOCTOR: TAKE YOUR LABORATORY TO THE COW

AND GET  
**SIMPLE  
SPEEDY  
ACCURATE  
DIAGNOSIS  
ON THE SPOT**



The 4-in-one test kit contains all the reagents necessary for diagnosing the four most common ailments of animals: Acetonemia, Serum Calcium Deficiencies, Albuminuria and Conditions of pH Unbalance. Hardwood case with polished brass hardware. Built to last a lifetime. A must for every progressive large-animal practitioner.

Sold through Veterinary Supply distributors to graduate Veterinarians only.

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(CLASSIFIED ADS — continued from p. 44)

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(Continued on p. 50)

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(CLASSIFIED ADS — continued from p. 48)

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July 1951

August 1951

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